PORSCHE

Product Information

Porsche 911 Turbo

Foreword

This training brochure provides detailed information on the many innovations of the new 911 Turbo. It also looks at the cars' strategic competitors.

The aim of this brochure is to provide the international Porsche sales organization with the ability to advise customers extremely competently concerning this new 911 vehicle. To this end, the information is presented in particularly detailed form.

In addition to presenting the technical features, the manual also outlines the pertinent product merits. This Product Information thus includes all information tailored to the customers' or prospects' needs and purchasing motives. This knowledge should, of course, be used selectively when offering professional technical advice.

Dr. Ing. h.c. F. Porsche
Aktiengesellschaft

Marketing & Sales Training

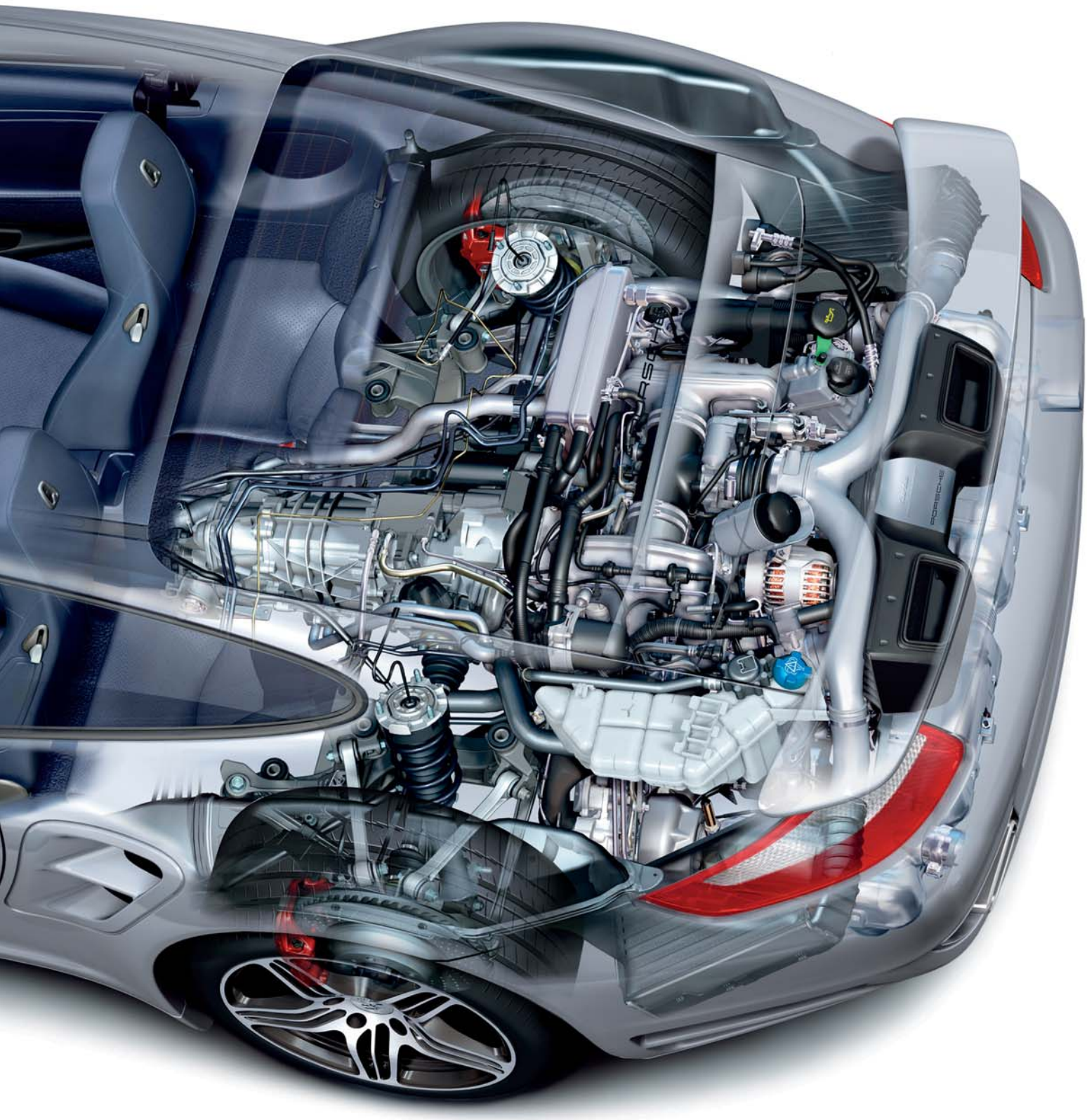

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Fig. 1: The new 911 Turbo

Note:
All information provided in this document is correct as of February 2006. Porsche reserves the right to alter design, technical specification, prices, equipment and final scope of delivery at any time prior to the market launch of the 911 Turbo.

The main focus of the descriptions contained in this document is on new features, changes in relation to the 911 Turbo (996) and the unique selling propositions of the new 911 Turbo. Features adopted from the current 911 generation (997) are identified by corresponding references. For detailed basic information, please refer to the established Product Information releases for the current 911 Carrera and 911 Carrera 4 models.

1 Overview

Since its arrival in 1974, the 911 Turbo – together with high-performance sports cars like the 959, 911 GT2 and Carrera GT – has been at the top of the Porsche model range and is now a synonym for the fusion of outstanding performance, excellent driving dynamics and extreme practicality. The last 911 Turbo (generation 996) affirmed this claim impressively. After a break in production of just under one year, the next stage in the evolution of the cutting-edge technology will be available in early summer 2006 with the launch of the new 911 Turbo based on the current 911 generation.

The main aim in developing the new 911 Turbo was to keep ahead of its competitors, particularly in the key areas of expertise at Porsche. This is achieved through a symbiosis of many features that provides an overall concept with excellent product features, including superior everyday driving performance. The new 911 Turbo thus embodies the following characteristics:

- Very attractive design
- Practical power specifications with significantly improved performance
- High practicality

All this is achieved using the latest cutting-edge technologies.

Fig. 2: The new 911 Turbo

1.1 Development objectives

Although the successful predecessor had already set very high standards, the specification for the new Turbo defined improvements, including some on a substantial scale, in virtually all areas. The primary development objectives were:

- A distinctive vehicle design which clearly stands out on its own within the 911 model line
- The use of a turbocharger with variable turbine geometry (VTG) for enhanced response and for improved performance and torque in combination with low fuel consumption
- The development of a new controlled all-wheel drive for high active safety and excellent driving dynamics
- The development of a chassis with variable dampers (Porsche Active Suspension Management - PASM) for superior handling and unrestricted agility combined with improved vehicle comfort
- Enhanced performance of the brake system via the use of larger brake discs and a 9-inch tandem brake booster with new brake-force distribution
- Optimization of the PSM vehicle stabilization system with enhanced braking readiness and brake assist
- Offsetting of the additional weight (equipment, engineering and safety) through intelligent lightweight design, including doors made of aluminum
- Optimization of all vehicle components to cover the entire spectrum from daily use on the road to sporting events on the race track
- High level of active and passive safety
- Reduced fuel consumption and low exhaust emissions (ecology)

As for all 911 Turbo models, the overall goal of all these development and optimization measures is best-in-class status.

1.2 The important highlights

The important highlights and product features are summarized below.

1.2.1 Design

The objective of the design development team working on the new 911 Turbo was to achieve the perfect synthesis of power, elegance and functionality at the highest level. It is not only its excellent power values that make the new 911 Turbo the top model in the 911 series, its design elements also make it stand out clearly from the other models of the 911 generation. Its optical authority emphasizes its performance potential. The exterior design is now even sportier and more dynamic compared to its predecessor, without being pretentious. At the same time, the elegance of the 911 lines and the new 911 Turbo's membership of the Porsche family have been cultivated further.

Front

The new 911 Turbo has a unique, yet unmistakable front, which indubitably highlights its special status both in the 911 model range and in the competitive environment. The striking, rigidly designed cooling air inlets define the new front end. Another characteristic feature of the new 911 Turbo is the design and position of the front lights. The standard oval Bi-Xenon headlights fit snugly into the front. The fog lights are positioned deeply and widely spaced. Their optimally engineered position combined with the formal integration into the front end gives the new 911 Turbo an extremely powerful appearance. The high-performance LED direction indicators in the side air inlets of the front end are a new stylistic feature on the 911 Turbo. Their functional, slimline design guarantees a virtually undisturbed flow of cooling air to the radiators behind.

Fig. 3: The new 911 Turbo

Fig. 4: The new 911 Turbo

Side view

The side air inlets behind the doors have been redesigned and give the 911 Turbo its special character. Their new shape guarantee an efficient supply of cooling air to the intercoolers. In addition to this functional advantage, the proportions and dynamic contours of the air inlets are perfectly adapted to the shape of the rear wing. The horizontal trim strip, which is integrated elegantly into the air inlets, gives the side view an even more dynamic look. The rigidly designed surfaces of the front fenders and aluminum doors emphasize the new wider rear side panels compared to the previous model. A black plastic side skirt protects the lower edges of the new 911 Turbo from chips caused by flying stones.

Developed exclusively for the new 911 Turbo, the 19-inch forged wheels with the standard two-tone look add a particular stylistic feature. Apart from being lightweight, forged wheels have extremely small spoke cross-sections with an unobstructed view of the attractively designed braking system and efficient brake cooling. The surface finish sets the 911 Turbo wheel apart from all other wheels. The highly polished frontal area contrasts impressively with the titanium-colored paintwork on the edges of the spokes.

The delicate trim strip design on the openings in the air outlets of the intercoolers in the rear apron round off the dynamic overall impression of the side view.

Rear

Even the rear view of the new 911 Turbo is now more powerful and more masculine compared to the previous model. This is due in particular to the fact that the body is 22 mm (0.87 in) wider in the rear area compared to the 911 Turbo (996). A characteristic feature of the new 911 Turbo is the wing element, whose visual attachment to the rear lid and wing in addition to the dynamics also underlines its elegance. The underlying principle of the split wing element has been adopted from the predecessor model. The tailpipes – inspired by the Carrera GT – are completely enclosed

by the rear apron and give a sense of the power housed in the rear engine. The heat protection panels in the openings of the tailpipes are a functional design element and allow a small gap between the tailpipe and rear end. The air openings in the rear lid with the dominant horizontal trim strips blend harmoniously into the dynamic rear design.

Interior

The new 911 Turbo has a completely new interior design compared to the predecessor model with leather interior as standard. The interior design is based extensively on that of the current 911 Carrera generation. It is characterized by improved passenger-compartment ergonomics, with a deeper seat position, pedals moved forward and additional steering-wheel height adjustment compared to the 911 Turbo (996). The Advanced Airbags (front passenger seat occupancy detection), the modified side airbag system with separate head and thorax airbags are also new features for the 911 Turbo. A unique gearshift lever and the well-known “turbo” logo on the entry guards and rev counter make the new 911 Turbo different from the current 911 Carrera models.

Fig. 5: The new 911 Turbo

Fig. 6: Interior

1.2.2 Performance

Thanks to new and enhanced turbocharger technologies, such as variable turbine geometry (VTG), the controlled all-wheel drive system PTM, the variable damping system PASM and the intelligent lightweight design, the new 911 Turbo achieves increased performance values compared to the 911 Turbo (996) with the following improvements:

- Maximum power + 65 hp
- Maximum torque + 60 Nm (45 lb.-ft.) (+ 120 Nm/90 lb.-ft. with Overboost in conjunction with the optional Sport Chrono Package Turbo)
- Higher torque curve, particularly in the lower rev range
- Significantly improved performance
- Reduced fuel consumption

Porsche uses a turbocharging system with variable turbine geometry (VTG) for the first time with the new 911 Turbo. The new 911 Turbo thus demonstrates once again the Porsche core competence, particularly in the engine and drive system. The turbocharging system is the characteristic feature of the 911 Turbo. Here, the new 911 Turbo sets new standards in today's competitive environment with the turbocharger technology for gasoline engines, which is a new departure for Porsche. Variable turbine geometry has been widely used for diesel engines since 1996, but the maximum emission temperatures for diesel engines are only around 700 °C (1,292 °F), while the maximum emission temperatures for turbocharged gasoline engines as in the new 911 Turbo, on the other hand, are around 1,000 °C (1,832 °F).

In order to also use variable turbine geometry (VTG) for gasoline engines, a particularly important consideration while developing the technology was to guarantee the functionality at the higher emission temperatures. Decisive factors here are not only the higher temperatures of the individual components, but particularly the overall design, including the numerous movable parts in the hot exhaust tract. Extremely heat-resistant materials from the space technology sector were used to guarantee heat resistance.

Fig. 7: 911 Turbo engine

Fig. 8: Turbocharger

The core elements of variable turbine geometry (VTG) are adjustable guide blades, which guide the exhaust gas flow from the engine variably and directly to the turbine in the turbocharger. The principle of variable turbine geometry thus combines the advantages of small and large turbochargers. Small turbochargers have a good response (small "turbo-lag") because of the turbine wheel's low accelerating mass and a high flow impellent power of the exhaust gases (see Fig. 9). This impellent power is created in the turbine housing by small flow cross-sections with high flow speeds. However, the small flow cross-sections both in the turbine housing and in the turbine wheel increase the flow resistance at high exhaust gas throughputs and thus at high engine speeds. They cause high exhaust backpressures ("pluging") and ultimately limit the maximum engine power.

Large turbochargers, on the other hand, have a bad response (large “turbo-lag”) because of the turbine wheel’s high accelerating mass and the low flow impellent power of the exhaust gases (see Fig. 10). Unlike small turbochargers, the exhaust backpressures are lower at high exhaust gas throughputs because of the larger flow cross-sections in the turbine housing and the turbine wheel. This results not only in less piston expulsion work but also gives an improved gas cycle with less residual gas in the cylinder and improved filling of cylinders. Ultimately, this results in higher maximum engine power.

Variable turbine geometry (VTG) involves simulating small turbochargers with closed guide blades and large turbochargers with open guide blades (see Fig. 11). Combining the advantages of both, variable turbine geometry (VTG) allows both a very good response with high torque values at low speeds as well as high power values at high speeds. The maximum torque is thus available over a significantly broader rev range.

Principle of small and large turbocharger in comparison to variable turbine geometry (VTG):

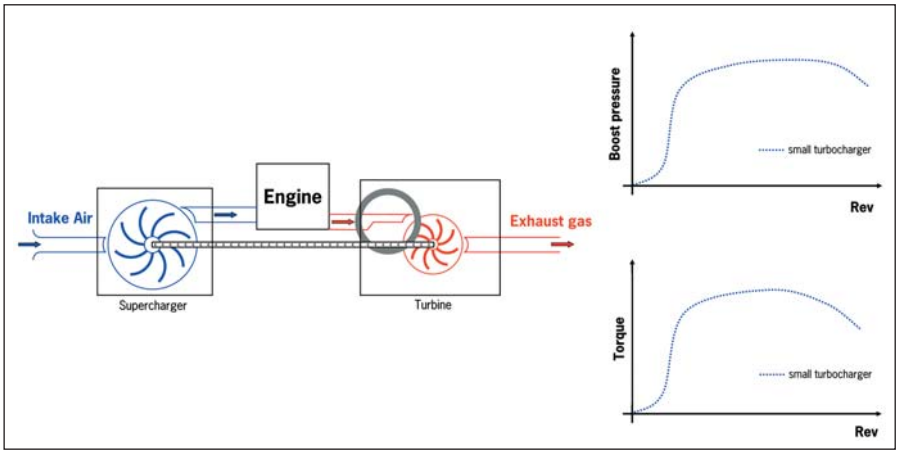


Fig. 9: Small turbocharger

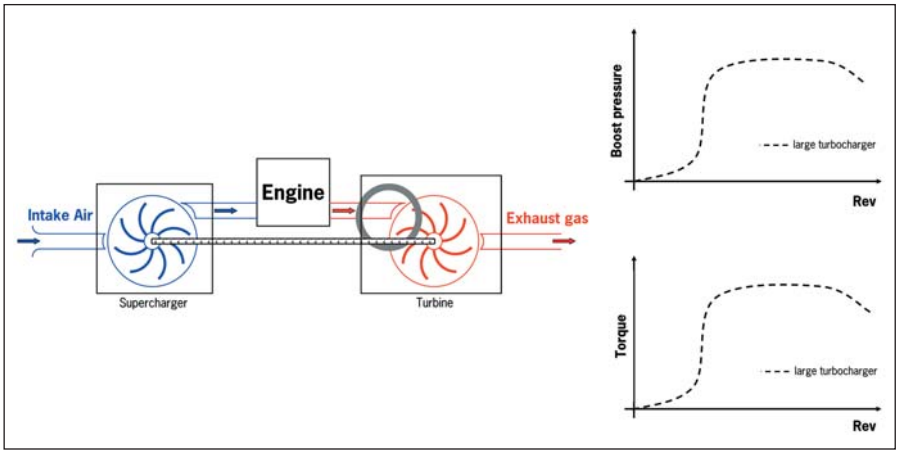


Fig. 10: Large turbocharger

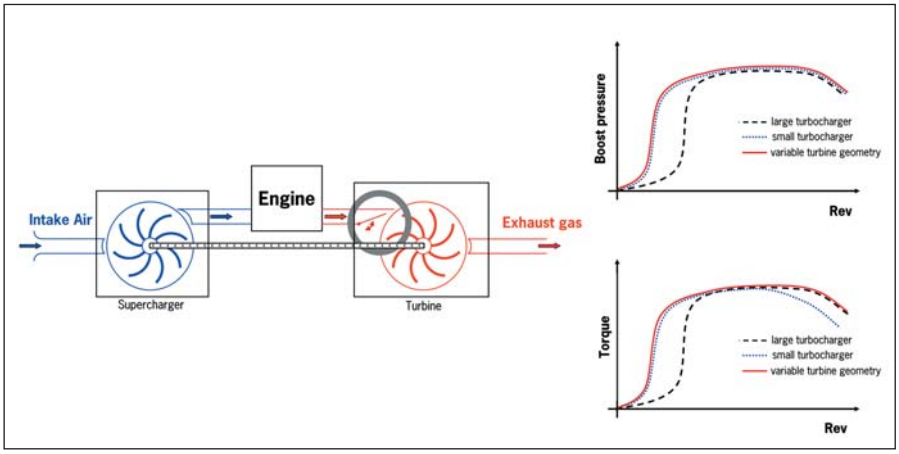


Fig. 11: Variable turbine geometry (VTG)

The following overview of the main performance data highlights the advantages of variable turbine geometry (VTG):

		New 911 Turbo (997)	911 Turbo (996)	911 Turbo S (996)
Displacement	cc	**3,600**	3,600	3,600
Max. power at	kW (hp) rpm	**353 (480)** **6,000**	309 (415) 6,000	331 (444) 5,700
Max. torque at	Nm (lb.-ft.) rpm	**620 (460)** **1,950 - 5,000**	560 (415) 2,700 - 4,600	620 (457) 3,500 - 4,500
Max. torque with Overboost* at	Nm (lb.-ft.) rpm	**680 (505)** **2,100 - 4,000**	- -	- -
Specific output	kW/l (hp/l)	**98.1 (133.3)**	85.8 (115.3)	91.9 (123.3)
Specific torque	Nm/l (lb.-ft./l)	**172.2 (127.8)**	155.6 (115.3)	172.2 (126.9)
Specific torque with Overboost*	Nm/l (lb.-ft./l)	**188.9 (140.3)**	-	-

* Only in conjunction with the optional Sport Chrono Package Turbo

The optional “Sport Chrono Package Turbo” is available for the first time with the new 911 Turbo. It is based on the well-known Sport Chrono Plus package available on current 911 Carrera models with analogue stopwatch on the dashboard, sporty mode for the accelerator pedal characteristic, specific transmission and chassis tuning as well as a performance display in the PCM and an ability to change/set individual memory settings. This package also includes the additional “Overboost” function on the new 911 Turbo. Overboost provides a short-term increase in boost pressure for even better acceleration at full load when the Sport button and the accelerator pedal is pressed in the middle rev range. The boost pressure overboost of approx. 0.2 bar (2.9 psi) is limited to around 10 seconds and increases the maximum torque significantly by approx. 60 Nm (45 lb.-ft.) to max. 680 Nm (505 lb.-ft.).

Outstanding performance has also been achieved with regard to fuel consumption. For example, fuel consumption has been reduced compared to the 911 Turbo (996) despite significantly higher power and torque levels. With overall fuel consumption of 12.8 l/100 km, the new 911 Turbo with manual transmission uses 0.1 l/100 km less fuel than the predecessor model. The difference is 0.3 l/100 km for the Tiptronic S with a total fuel consumption of 13.6 l/100 km.

A further highlight is the development of the new all-wheel drive technology. The introduction of Porsche Traction Management (PTM) means that for the first time ever the new 911 Turbo has an actively controlled all-wheel drive system with exceptional characteristics. In addition to the controlled all-wheel drive system, PTM includes the automatic brake differential (ABD), anti-slip regulation (ASR) and the optional mechanical rear differential lock.

In the well-known all-wheel drive system with viscous multi-disc clutch, the front-wheel drive is engaged passively via the differential speed between the rear and front axle. The differential speed causes shear forces between the discs in the clutch, which is filled with silicon oil of a particular viscosity. The discs connected to the rear axle then drive the discs connected to the front axle and the drive force is transferred to the front axle.

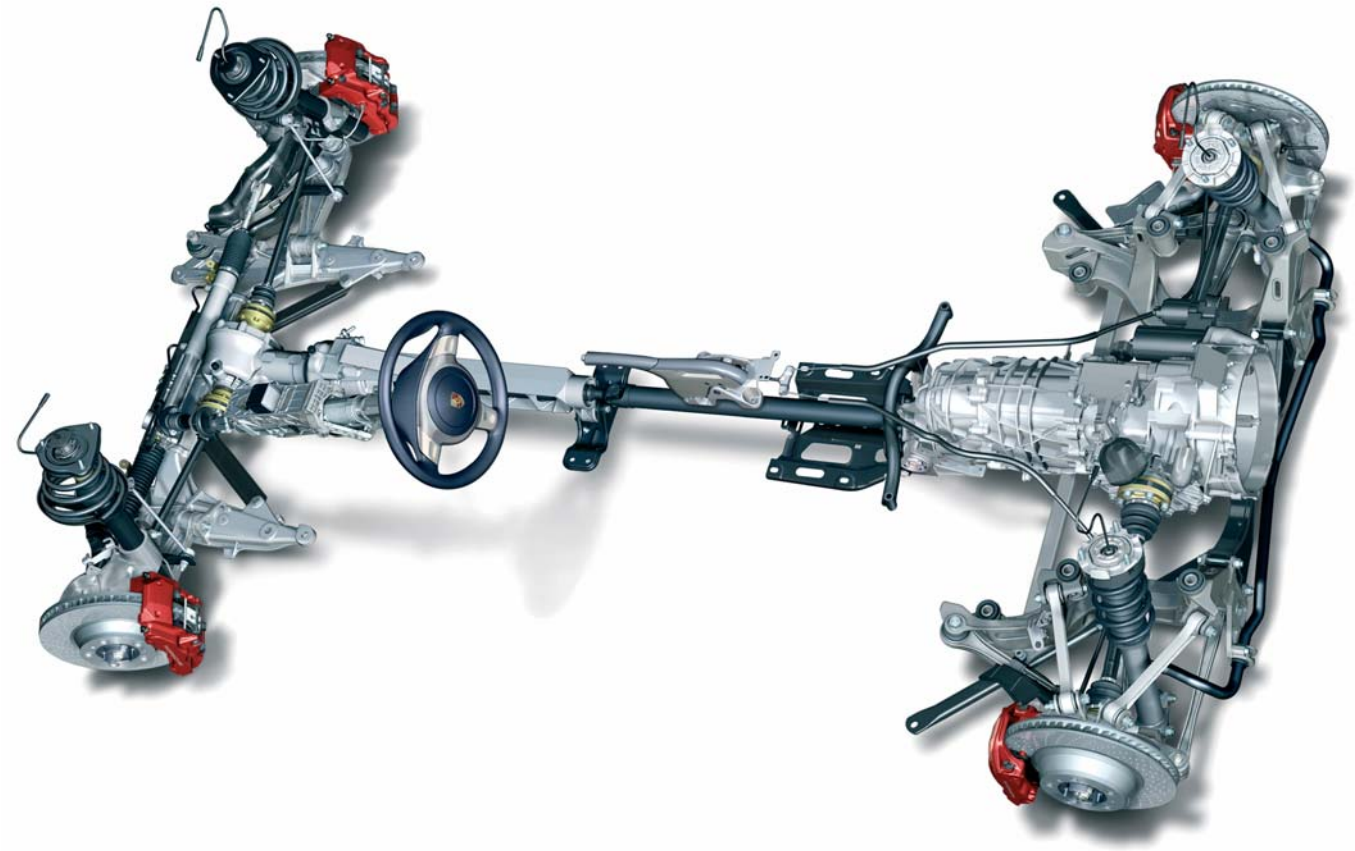


Fig. 12: Controlled all-wheel drive – Porsche Traction Management (PTM)

With PTM, the front axle is now also driven actively via an electronically controlled and electro-magnetically actuated multi-disc clutch. The active control enables a direct frictional connection and achieves faster and more direct power transmission compared to the viscous multi-disc clutch. The active control also allows power transmission that is ideally suited to the current driving situation. With PTM, for example, the electromagnetically actuated multi-disc clutch closes immediately when you move off. This means that the complete traction potential of all four wheels is available without delay when moving off.

Porsche Traction Management is controlled based on a number of measured values, such as engine torque, steering angle, wheel speeds and driving dynamics-related signals, e.g. oversteering and understeering. These are evaluated in the PTM control unit. The torque distribution required for the current driving situation is selected and the multi-disc clutch is activated accordingly. This complex and highly dynamic system guarantees superior agility and driving dynamics on narrow country roads, for example, as well as excellent driving stability and remarkable driving safety at high speeds. In addition, PTM significantly improves driving characteristics and traction, particularly on roads with a low friction value (rain, snow and ice).

The new 911 Turbo is supplied as standard equipment with a 6-speed manual gearbox with reduced shift throw that has been reinforced compared to the 911 Turbo (996). A further developed 5-speed Tiptronic S automatic gearbox with reduced gearshift and response times and significantly improved acceleration and driving dynamics is available as an option. With acceleration from 0 to 100 km/h in 3.7 seconds (0-60 mph in 3.4 seconds), the new 911 Turbo with Tiptronic S is not only faster than the 911 Turbo (996) with Tiptronic S (4.8 sec.), but – for the first time ever – it is even faster than a 911 Turbo with manual transmission (new 911 Turbo: 3.9 sec./ 0-60 mph in 3.7 sec.). This is possible not only because of the faster gearshift and response times, but particularly due to the fact that the greatest possible amount of boost pressure is delivered just when you start moving off.

The Tiptronic S also has a new additional "Fast-Back" function. For sporty driving, an immediate and instantaneous downshift is initiated, e.g. for braking before corners, when changing quickly from the accelerator pedal to the brake pedal within 1.5 seconds.

The new 911 Turbo is supplied as standard equipment with the Porsche Active Suspension Management (PASM) chassis, as used in the current 911 generation, with actively adjustable dampers and ride height lowered by 10 mm (0.39 in) compared to the current 911 Carrera models. This variable damping system, which has been specially adapted for the new 911 Turbo, combines a chassis that offers both sporty comfort and dedicated sportiness with excellent performance and increased driving safety. The further developed Porsche Active Suspension Management (PASM), with which you may be familiar from the current 911 Carrera 4 models, with increased brake readiness (pre-filling of the braking system) and brake assist also is supplied as standard equipment of the new 911 Turbo. The steering with variable steering ratio is the same as that used in the current 911 generation.

The braking system of the new 911 Turbo has been further developed based on the well-known braking system in the 911 Turbo (996). The important changes include the conversion of the calipers on the front axle from 4 to 6 pistons, increasing the steel brake discs on front and rear axle from 330/330 mm (12.99/12.99 in) to 350/350 mm (13.78/13.78 in) and the use of a tandem brake booster. As a result, the performance potential of the new 911 Turbo is also characterized by excellent braking ability and safety reserves. The optional ceramic brake system Porsche Ceramic Composite Brake (PCCB) has also been further developed and now has brake discs with a diameter of 380 mm (14.96 in) on the front axle instead of 350 mm (13.78 in) (as on the Carrera GT).

The 19-inch five-spoke Turbo wheels were developed specifically for the new 911 Turbo. They are forged and have a unique design. Forging technology guarantees optimum weight and rigidity as well as excellent structural stability. The two-tone look with titanium-colored spoke edges and polished front emphasizes the depth effect and high-quality appearance. In addition, the new 911 Turbo includes the Tire Pressure Monitoring system (TPM) as standard worldwide.

The basis for achieving high performance is not only an excellent drive and exceptional chassis, but also a vehicle weight that is as low as possible. In developing the new 911 Turbo, each individual component was therefore examined with regard to both its strength and its potential for weight reduction. Many minor modifications were made in order to improve weight while taking the predefined load restrictions into consideration. The improvements are enhanced by the further use of aluminum. In comparison with the current 911 Carrera generation with an aluminum luggage compartment lid, the doors are also made of aluminum on the new 911 Turbo. With all the lightweight design measures, it was possible not only to offset the additional weight of technical fittings, equipment and safety systems, e.g. variable turbine geometry (VTG), PTM, PASM, 19-inch wheels, further reinforced braking system, additional side airbags and the Tire Pressure Monitoring (TPM) system, but even achieve a lower vehicle weight. The unladen weight of the new 911 Turbo is 1,585 kg (3,494 lbs) (DIN) compared with 1,590 kg (3,505 lbs) for the 911 Turbo (996).

Like the 911 Turbo (996), the new 911 Turbo also features Porsche Communication Management (PCM) incl. navigation module as standard. What's new with regard to PCM is the use of a DVD navigation system similar to that used in the current 911 generation with significantly faster data access and higher data capacity, plus the fact that the drive has been moved to the luggage compartment. The CD drive integrated in the PCM can now play normal CDs and MP3 CDs. Another new feature – as in the current 911 generation – is the further enhancement of the standard BOSE® Sound system (996) to the BOSE® Surround Sound system with increased amplifier output (+100 watts), a new generation of loudspeakers for improved sound quality and additional Surround Sound.

1.2.3 Product description

The following pages contain the important details of the new 911 Turbo. This product description highlights the changes compared to the 911 Turbo (996). Porsche reserves the right to make changes relating to product range, technical specifications and availability at any time prior to commencement of series production.

911 Turbo (997)	Changes compared to the 911 Turbo (996) are shown in **bold**
Product range	• 2+2-seat Coupé • Available worldwide
1. Engine	• 6-cylinder horizontally opposed engine, 3.6 l displacement • Dry-sump lubrication with **9 oil pumps** and external engine oil tank • Turbocharging with **variable turbine geometry (VTG)** • Maximum output **353 kW (480 hp)** • Maximum torque **620 Nm (460 lb.-ft.)** • Maximum torque with **Overboost function 680 Nm (505 lb.-ft.)** (only in conjunction with the optional **Sport Chrono Package Turbo)**
2. Transmission	• Six-speed manual gearbox with dual-mass flywheel • Five-speed Tiptronic S (optional) with new additional **Fast-Back** function
3. All-wheel drive	• Porsche Traction Management (PTM) • All-wheel drive with **map-controlled** multi-disc clutch
4. Chassis	Chassis • **Porsche Active Suspension Management (PASM)** Brake system • **6-piston front brake calipers,** 4-piston rear brake calipers • Steel brake discs at front/rear, **350/350** mm (13.78/13.78 in.), internally vented and cross-drilled • Brake calipers coated red Ceramic brake system PCCB (optional) • 6-piston front brake calipers, 4-piston rear brake calipers • Ceramic brake discs at **front**/rear, **380**/350 mm (14.96/13.78 in.), internally vented and cross-drilled with **enhanced disc technology** • Brake calipers coated yellow Wheels and tires • **19-inch Turbo forged wheels, two-tone** • Front: **8.5J x 19** with tires **235/35 ZR 19** • Rear: **11J x 19** with tires **305/30 ZR 19** • **Tire Pressure Monitoring system (TPM)** as standard • **Tire repair kit**

911 Turbo (997)	Changes compared to the 911 Turbo (996) are shown in **bold**
5. Body	• 2+2-seat Coupé with wide body • Sheet steel hot-dip galvanised on both sides • **Aluminum luggage-compartment lid** • **Aluminum doors** • Turbo front apron with **specific LED direction indicator lights and integrated fog lights** • Turbo rear side panels with **enhanced air inlets** for the intercoolers • Turbo rear lid with **enhanced**, automatically extending split wing element • "turbo" rear logo (chrome colored) • Turbo rear apron with **raised, integrated individual tailpipes and enhanced** air outlets for the intercoolers • **Curved door handles** • Tank with **67 liter (17.7 gal.)** refillable volume • Metallic paintwork as standard • Windshield with grey top tint • Electric slide/tilt sunroof • ORVR system • "Bumper guards" on rear end in vehicle color • Trunk Entrapment (luggage compartment emergency release)
6. Interior	• **Interior design** as in the current 911 generation • **Aluminum Look interior components** as in the 911 Carrera S/4S • Leather interior as standard • Door entry guards and rev-counter with "turbo" logo • **3-spoke sports steering wheel** with reach and **height adjustment,** steering wheel rim and impact absorber with smooth leather finish in interior color • **Turbo gear lever** • Fully electric seats with lumbar support and memory function as standard • 2 full-size airbags for driver and passenger • POSIP including **separate head and thorax airbags** • **Pedals in Sports Look** • **Advanced Airbag** (front passenger seat occupancy detection)
7. Electrics	• **New headlight and tail light design** as in the current 911 generation • Bi-Xenon lighting system with headlight leveling system and headlight washer system • **Front direction indicator lights in LED technology** • **Separate compact fog lights** • **Electronic ignition lock with new ignition keys** • Networking of control units via **CAN bus** • Instrument cluster with **new boost pressure gauge** and "turbo" logo • Automatically adjustable interior/door mirrors with integrated rain sensor as standard • Additional marker lights in front and rear ends • HomeLink® (garage door opener) • Cruise control
8. Audio and communication	• Porsche Communication Management (PCM) including CD radio with **MP3 player function** and CD tray • Navigation module **with DVD navigation** for PCM as standard • BOSE® **Surround** Sound system as standard • Networking of control units via **MOST bus**

911 Turbo (997)

Changes compared to the 911 Turbo (996) are shown in **bold**

9. Colors

Exterior colors

Solid colors	Metallic colors	Special colors (optional)	Colors to sample (optional)
• Black • Guards Red • Carrara White • Speed Yellow	• Basalt Black Metallic • Arctic Silver Metallic • Midnight Blue Metallic • Carmona Red Metallic • Atlas Grey Metallic • **Meteor Grey Metallic*** • **Cobalt Blue Metallic** • **Forest Green Metallic**	• Slate Grey Metallic • GT Silver Metallic • **Lapis Blue Metallic** • **Dark Teal Metallic** • Dark Olive Metallic	• Colors to sample

* Available from 08/2006

Interior colors

Standard colors	Special colors (optional)	**Two-tone** (optional)	Natural leather (optional)
• Black • **Stone Grey** • **Sand Beige** • **Palm Green** • **Sea Blue**	• **Terracotta** • **Cocoa**	• **Black and Terracotta** • **Black and Stone Grey** • **Black and Sand Beige**	• Natural Dark Grey • Natural Brown

1.2.4 Product differentiation

The new 911 Turbo is available as a Coupé with 6-speed manual gearbox or optional 5-speed Tiptronic S. The main differences compared with the current 911 Carrera 4S Coupé are as follows:

911 Turbo Package

Design

- Wide body with Turbo-specific rear side section with air inlets for the intercoolers
- Turbo front apron with specific LED direction indicator lights and integrated fog lights
- Turbo rear lid with automatically extending split wing element and “turbo” logo (chrome colored)
- Turbo rear apron with raised, integrated individual tailpipes and air outlets for the intercoolers
- 19-inch Turbo wheels, forged with two-tone look
- Specific engine compartment design

Performance

- 3.6 liter horizontally opposed bi-turbo engine with variable turbine geometry (VTG)
- Maximum power: 353 kW (480 bhp), maximum torque: 620 Nm/460 lb.-ft. (680 Nm/505 lb.-ft. with Overboost function)
- Porsche Traction Management (PTM): Controlled all-wheel drive with map-controlled multi-disc clutch
- Reinforced braking system (front/rear: 6-/4-piston monobloc fixed calipers, brake disc diameter: 350/350 mm (13.78/13.78 in)), brake calipers painted red
- Lightweight design due to use of aluminum doors, among other things

Interior differentiation

- Turbo gear lever
- Door entry guards with “turbo” logo
- Instrument dials with digital boost pressure gauge and rev counter with “turbo” logo

Options incorporated as standard

- Metallic paintwork
- Tire Pressure Monitoring (TPM) system
- Leather interior
- Fully electric seats with lumbar support
- 3-spoke sports steering wheel in smooth leather
- Automatically dimming interior/door mirrors with integrated rain sensor
- Navigation module for PCM
- BOSE® Surround Sound system
- Rear window wiper (without extra charge)

Specific options for the 911 Turbo

- Sport Chrono Package Turbo (incl. Overboost function)
- PCCB with brake disc diameter of 380 mm (14.96 in) on front axle

1.2.5 Dates

Start of production	01/2006 (LHD/USA), 03/2006 (RHD)
Press release	**13.02.2006**
1. Trade fair debut	28.02.2006 in Geneva (first press day)
Market launch	24.06.2006 worldwide

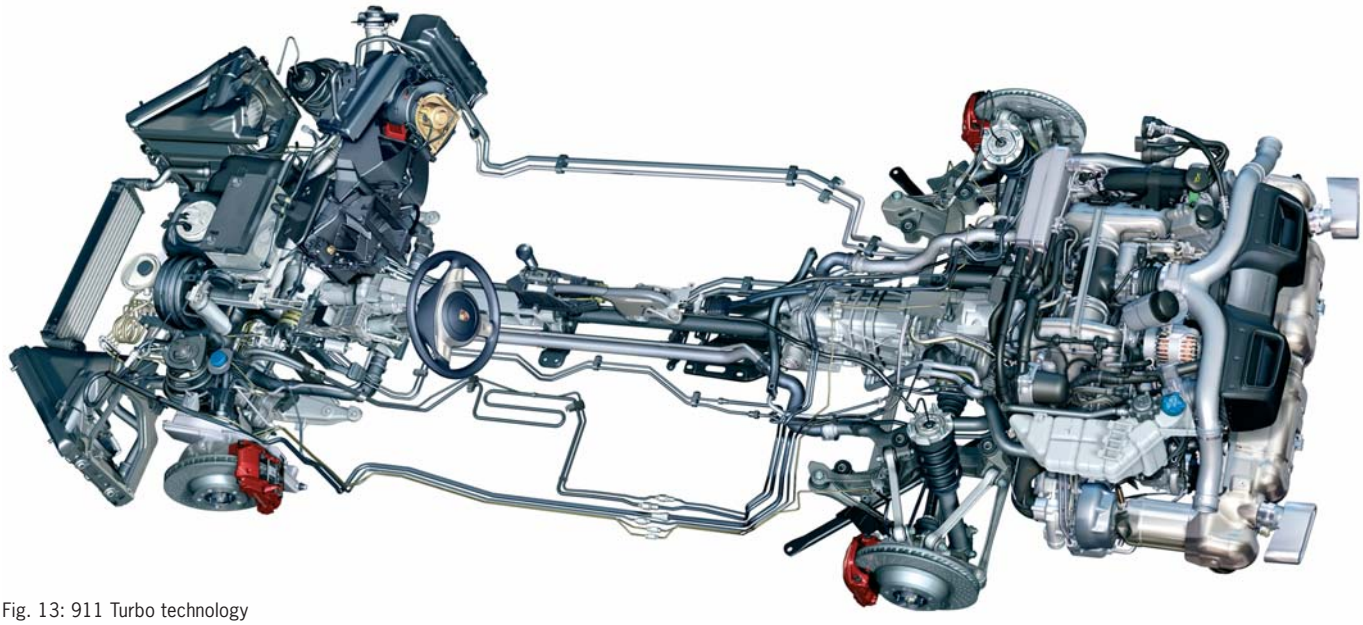


Fig. 13: 911 Turbo technology

2 Engine

The engine of the new 911 Turbo with a displacement of 3.6 l is a futher development based on the engine in the 911 Turbo (996), which is based on the 911 GT1 that has proven itself in the field of motor racing. For the first time ever, the engine of the new 911 Turbo incorporates turbocharging with variable turbine geometry (VTG). This technology enables an extremely fast build-up of boost pressure, accompanied by good response, high torque even at low engine speeds and over a broad rev range, and a high maximum power output combined with low fuel consumption.

Similarly to the 911 Turbo (996), the engine of the new 911 Turbo also incorporates the following key features:

- 6-cylinder horizontally opposed engine, water-cooled
- Displacement 3.6 l
- 4 valves per cylinder with hydraulic valve clearance compensation
- VarioCam Plus inlet camshaft control, valve lift adjustment
- Dry-sump lubrication with external engine oil tank
- Individual ignition coils with static high-voltage system
- On-Board Diagnostics system (OBD II)

Fig. 14: 911 Turbo engine

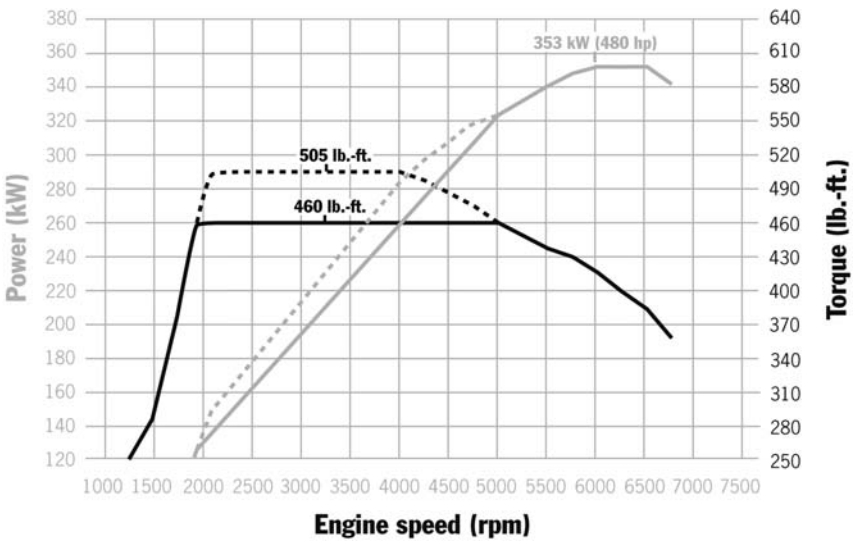


Fig. 15: Power and torque output

2.1 Changes compared to the 911 Turbo (996)

The following features are new or have undergone further development on the new 911 Turbo in comparison to the predecessor model:

- Turbocharging with variable turbine geometry (VTG)
- Higher output and torque
- Overboost function in conjunction with the optional “Sport Chrono Package Turbo“
- Optimized VarioCam Plus
- Optimized dry sump lubrication with 9 oil pumps
- Enhanced cooling performance incl. 2-stage oil cooling
- Improved intercooling
- New exhaust system with individual tailpipes integrated in the rear apron
- Improved emission control and emission monitoring for USA (LEV II and more stringent OBD II with monitoring via CAN bus) and for Europe (EU4)
- Use of different materials and components for increased strength and reduced weight
- Attractive engine compartment design

2.2 Basic engine

The basic engine of the new 911 Turbo has essentially been adopted from the 911 Turbo (966). The new 911 Turbo thus also has a vertically split crankcase made of die-cast light alloy with a crankshaft installed on 8 bearings. The engine has a displacement of 3,600 cc, a cylinder bore of 100 mm (3.94 in) and a piston stroke of 76.5 mm (3.01 in). The pistons run in Nikasil-coated aluminum cylinder liners. The short block engine is produced in the familiar “sandwich-type design”. The cylinder housings are

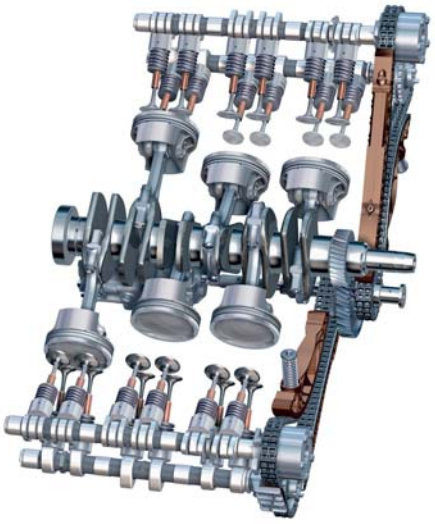


Fig. 16: 911 Turbo engine

bolted to the cylinder head and camshaft housing and to the crankcase.

2.3 Vacuum pump

In keeping with the current 911 generation, the new 911 Turbo is also equipped with a mechanically driven vane-type vacuum pump. This replaces the conventional sucking jet pump and provides the vacuum for the brake booster and various switching valves for the turbocharger (recirculated air from compressor in overrun mode) and the cooling water. The pump is located on the cylinder head of cylinder bank 4 - 6 and is driven by the corresponding exhaust camshaft.

2.4 Cooling

As on the 911 Turbo (996), water cooling on the new 911 Turbo is also carried out in the cylinders and cylinder heads according to the cross-flow principle, with the water flowing from the hot to the cold side. This principle enables homogeneous temperature distribution combined with even distribution of the load on the components.

In order to meet the increased cooling requirements of the engine oil in the new 911 Turbo, the waste heat from the engine oil is now channelled into the cooling water via two oil/water heat exchangers, rather than the single exchanger employed on the 911 Turbo (996). This increases cooling performance by more than 15 %. The second oil-water heat exchanger is located in the oil return line leading to the oil tank. This configuration avoids imposing any increased resistance on the oil pressure pipe as a result of the heat exchanger

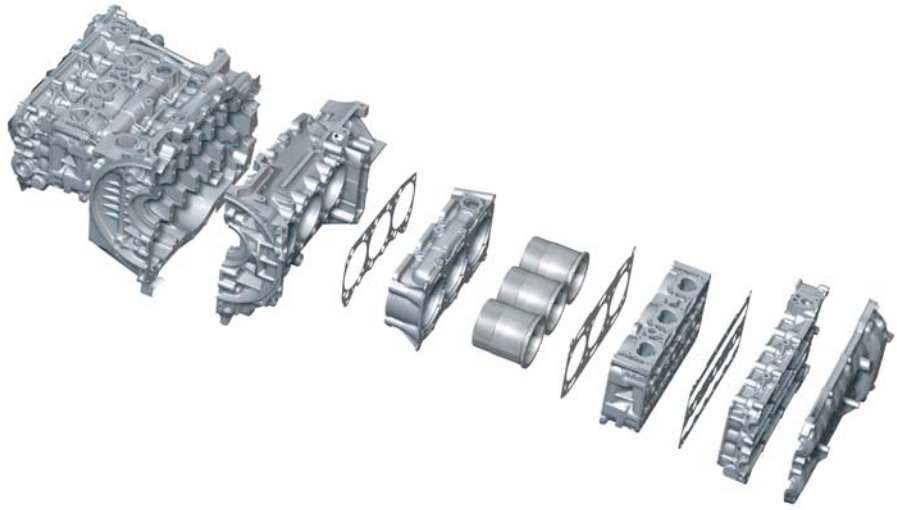


Fig. 17: 911 Turbo engine

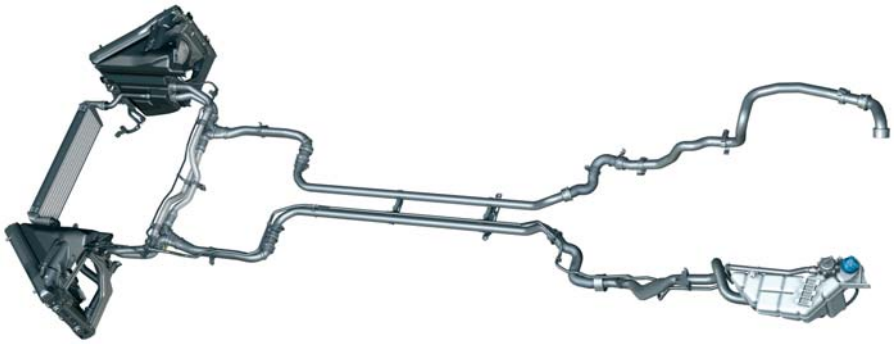


Fig. 18: 911 Turbo cooling

and ensures an adequate supply of oil to the engine. This also results in increased heat transfer to the cooling water and an attendant increase in cooling efficiency, as the temperature in the return pipe is higher than in the oil pressure pipe.

An adapted water circuit ensures the optimum distribution of water to the heat exchangers and the other components requiring a supply of water, such as the cylinder heads, the turbochargers and the heating. The heat from the cooling water is released into the outside environment via one radiator module on the left and right sides respectively in front of the front wheels and a central radiator in the front end of the vehicle.

To enable discharge of the additional heat output resulting from the increased engine power while maintaining the same radiator dimensions, particular attention has been devoted to increasing the cooling-air throughput in developing the aerodynamic design of the front end.

For the first time, the bearing housings of the turbochargers are additionally cooled with water on the new 911 Turbo. This is carried out by means of a separate electrically operated water pump. This pump increases the water throughput according to requirements at low engine speeds and even enables efficient cooling of the heavily stressed turbochargers when the engine is stationary after journeys which have made great demands on the engine.

2.5 Oil supply

Oil supply in the new 911 Turbo is effected by means of the tried and tested dry sump lubrication system. This classic technology employing a separate engine oil tank which is deployed for particularly high-performance engines such as those in the GT1, the 911 GT2 and the 911 GT3 ensures an adequate supply of oil even during extreme and sustained lateral and longitudinal acceleration. The total quantity of oil in the oil circuit on the new 911 Turbo stands at approx. 11 liters.

In comparison to the 8 oil pumps on the 911 Turbo (996), the new 911 Turbo features an additional extraction pump in the crankcase, resulting in a total of 9 oil pumps. These break down into 8 oil extraction and one oil delivery pump: 2 oil extraction pumps for the turbochargers, 4 oil extraction pumps for the cylinder heads (2 per cylinder head), and 2 extraction pumps and one delivery pump in the crankcase.

2.6 Variable valve control (VarioCam Plus)

The new 911 Turbo features the latest version of the VarioCam Plus valve control system, incorporating control of the inlet camshafts and lift adjustment of the inlet valves. Valve lift adjustment was premiered in the 911 Turbo (996). The system has undergone further development and now features the following changes in comparison to the 911 Turbo (996):

Overview of changes to VarioCam Plus	**New 911 Turbo** (997)	911 Turbo (996)
Camshaft (timing)	**New tuning**	Basic tuning
Camshaft adjuster	**Vane** type	Axial type
Valve lift (small)	**3.6 mm / 0.14 in**	3.0 mm / 0.12 in
Valve lift (large)	10.0 mm / 0.39 in	10.0 mm / 0.39 in
Timing adjustment	**Continuous**	Digital
	Adjustment range **40°** crank angle	Adjustment range 30° crank angle

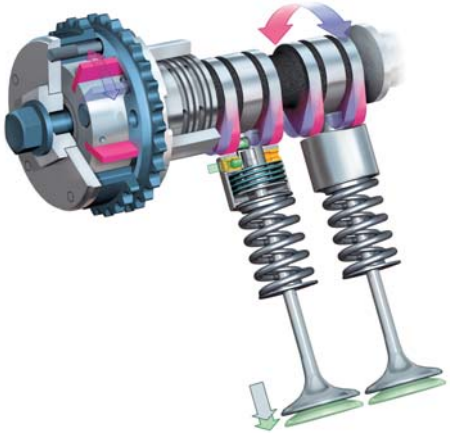


Fig. 19: 911 Turbo VarioCam Plus

Fig. 20: Variable turbine geometry (VTG)

The main optimization features, such as the vane adjuster and continuous camshaft control, were introduced on the 911 Carrera models (996) as model improvements in 2001. These modifications now result in enhanced performance for the new 911 Turbo, too, combined with improved driving comfort and low emissions and fuel consumption.

In order to make even more efficient use of the advantages offered by VarioCam Plus with continuous camshaft adjustment and a larger adjustment range in terms of fuel consumption, performance and emissions, the small valve lift has been increased from 3.0 mm (0.12 in) to 3.6 mm (0.14 in).

Exhaust valves

Similarly to its predecessor, the new 911 Turbo also possesses sodium-cooled exhaust valves to ensure the necessary heat resistance. The increased boost pressure which is required to increase the power output over the 911 Turbo (996) results in a corresponding increase in exhaust backpressure in the new 911 Turbo. In order to ensure reliable closing of the exhaust valves, the valve spring assembly has been revised. This has been achieved without increasing the spring force at maximum valve lift and without any additional frictional loss or excessive pressure at the point of contact between cam and lifter. In order to ensure adequate durability of the hydraulic lifters on the exhaust side, the shaping has been optimized and the base reinforced while maintaining the same overall weight.

2.7 Variable turbine geometry (VTG)

The greatest area of development potential offered by turbocharging lies in resolving the conflict between good response at low engine speeds and high specific output levels at high engine speeds.

History

Since the introduction of turbocharging in standard production vehicles in 1974, the 911 Turbo has demonstrated the competence of Porsche in the field of turbocharging. It all began with a turbocharger which enabled the very first 911 Turbo to achieve outstanding torque and output values. This relatively large turbocharger entailed the disadvantage of sluggish response, however, and a vast but highly delayed rise in boost pressure and torque. The result was impressive acceleration, but accompanied by the familiar “turbo-lag”.

The further development of turbocharging thus concentrated on improving the response of turbochargers. In 1985, the trailblazing Porsche 959 featured two small turbochargers with sequential turbocharging instead of one large turbocharger. The reduced inertia of the small turbochargers meant that they were able to accelerate more quickly, thus markedly reducing the “turbo-lag”. Sequential turbocharging even provided for a further increase in acceleration efficiency. The technology employing two small turbochargers (biturbo charging) was used in a standard Porsche production vehicle for the first time in 1995, featuring in the 911 Turbo, type 993. Fine tuning of the small turbochargers resulted in a further improvement in response. This, in turn, eliminated the need for sequential turbocharging, resulting in weight and space advantages. This only went some of the way towards resolving the conflicting aims of high engine torque in the low rev range

combined with high specific output in the high rev range, however.

Variable turbine geometry (VTG), featuring adjustable guide blades before the turbine wheel, has emerged as a suitable means of improving the response of the turbochargers and thus of the turbo engine, too. This technology was first introduced on a significant scale in diesel engines in 1996. The new 911 with variable turbine geometry is now setting new standards in the field of gasoline engines with turbocharging.

A technical challenge

The core elements of variable turbine geometry (VTG) are adjustable guide blades, which guide the exhaust gas flow from the engine variably directed to the turbine in the turbocharger. The application of variable turbine geometry is more problematic in gasoline engines, owing to the markedly higher exhaust gas temperatures. The maximum exhaust gas temperatures at the turbine inlet are substantially higher in gasoline engines with turbocharging, at approx. 1,000 °C (1,832 °F) as compared to approx. 700 °C (1,292 °F) in diesel engines. This imposes substantial additional stress on the materials and high requirements on the structural design. The delicate adjustable guide blades in the hot exhaust gas flow are particularly critical. In addition to ensuring the stability of individual components at high temperatures, large temperature variations also must be taken into account. The different material expansion characteristics have to be considered from cold starting at -30 °C (-22 °F) up to a maximum controlled exhaust gas temperature (at the turbine inlet) of approx. 1,000 °C (1,832 °F), ensuring correct functioning of the entire adjustment system including its many individual components. This is achieved by a combination of measures including an appropriate choice of materials, a two-stage oil-cooling system including afterrun pump and an additional water cooling system for the bearing housing.

Technical principle

A turbocharger with variable turbine geometry combines the respective advantages of a small and a large turbocharger. Small turbochargers have a good response (small “turbo-lag”) because of the turbine wheel’s low accelerating mass and the high flow impellent power of the exhaust gases. This impellent power is generated in the turbine housing at the point of transfer to the turbine wheel by small flow cross-sections with high flow speeds. However, the small flow cross-sections in both the turbine housing and the turbine wheel increase the flow resistance at high exhaust gas throughput rates and attendant high engine speeds, cause high levels of exhaust backpressure (“plugging”) and ultimately limit the maximum engine power.

Large turbochargers have a poor response (large “turbo-lag”) because of the turbine wheel’s high accelerating mass and the low flow impellent power of the exhaust gases. Unlike small turbochargers, the exhaust backpressures are lower at high exhaust gas throughputs because of the larger flow cross-sections in the turbine housing and the turbine wheel. This results not only in less piston expulsion work but also leads to an improved gas cycle with less residual gas in the cylinder and improved filling of cylinders, for example. Ultimately, this results in a higher maximum engine power.

Variable turbine geometry involves simulating small turbochargers with closed guide blades (small blade gap) and large turbochargers with open guide blades (large blade gap). Combining the advantages of both, variable turbine geometry allows both a very good response with high torque values at low speeds as well as high power values at high speeds. High torque is thus available over a significantly broader rev range.

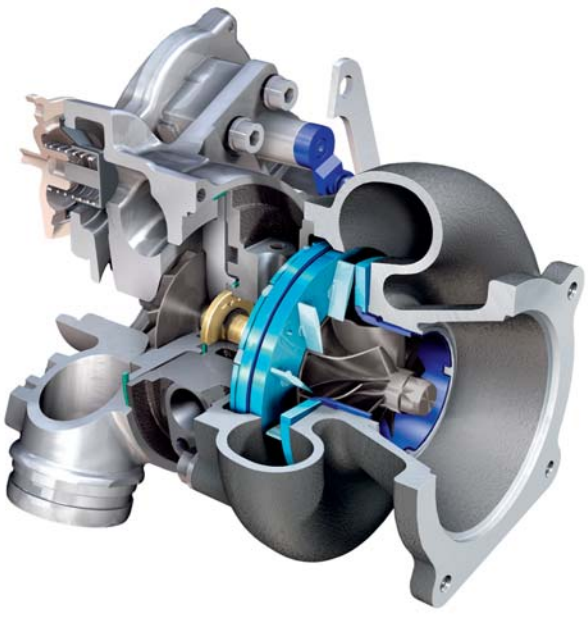


Fig. 21: Variable turbine geometry (VTG)

When the blades are closed at low engine speeds, the exhaust gas is accelerated in the small air gap and impacts radially on the turbine wheel at high energy. The compressor wheel which is located on the same shaft is subsequently also accelerated strongly, increasing the boost pressure. This leads to good response of the turbocharger and ultimately a high level of dynamic engine and vehicle acceleration. As the exhaust gas flow increases (rising engine speed), the guide blades are opened when reaching the desired (maximum) boost pressure. Adjusting the guide blades from open to closed position and vice-versa takes only around 100 milliseconds.

The principle of variable turbine geometry is essentially based on the following two physical characteristics:

- Variable blade gap
- Variable flow angle

The variable blade gap is obtained by rotation of the adjusting ring, as a result of which the guide blades are turned. A small blade gap reduces the flow cross-section. The resultant higher gas speeds mean that the exhaust gas is directed onto the turbine blades at high momentum. The turbine wheel rotates more quickly, driving the compressor wheel which is located on the same shaft. The compressor compresses the air which is then supplied to the engine for combustion. As an overall result, the engine receives more air more quickly, leading to correspondingly more dynamic acceleration.

By adjusting the blade guiding system and thus the size of the blade gap, the exhaust gas flow can be directed onto the turbine wheel as required for maximum efficiency at every operating point over the entire engine speed range, resulting in the appropriate boost pressure. By applying this map-controlled technology and selecting an appropriate size of turbine, the waste gate which is normally required for engines with turbocharging can be omitted.

Adjustment of the guide blades changes not only the blade gap, however, but also the angle at which the exhaust gas impacts on the turbine blades. This variable flow angle supports dynamic turbocharging via variable turbine geometry. Small blade gaps result not only in higher gas velocities in the blade gap. When the guide blades are set to this position, the flow angle at which the exhaust gas impacts on the turbine blades is also more direct and induces a higher angular momentum in the turbine wheel.

When the guide blades are opened, this flow angle becomes flatter and the additional momentum induced in the turbine blades is reduced.

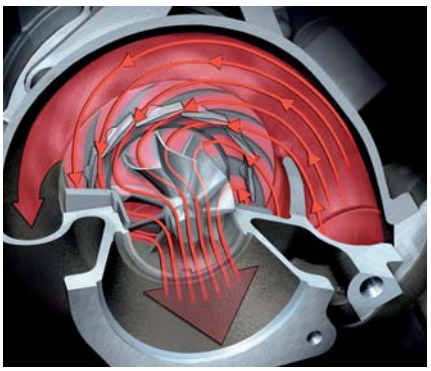


Fig. 22: Closed guide blades

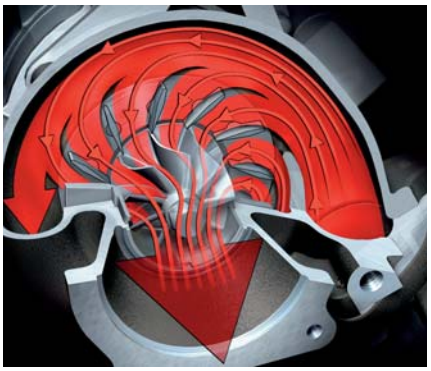


Fig. 23: Open guide blades

The optimum blade settings for maximum efficiency throughout the entire engine control map have been determined in extensive application research. The key terms of reference for this tuning work were optimization of response in particular during dynamic acceleration and low fuel consumption throughout broad areas of the engine control map. Variable turbine geometry (VTG) results in high torque values even at low engine speeds and an extensive output spectrum at high engine speeds.

Adjustment system

The adjustment system with adjusting ring and movable guide blades is the core element of the turbocharger with variable turbine geometry (VTG). It consists of 11 adjustable guide blades which are interconnected by the adjusting ring. The adjusting ring is connected via a connecting rod to the electric drive motor (map-controlled) which controls adjustment of the guide blades.

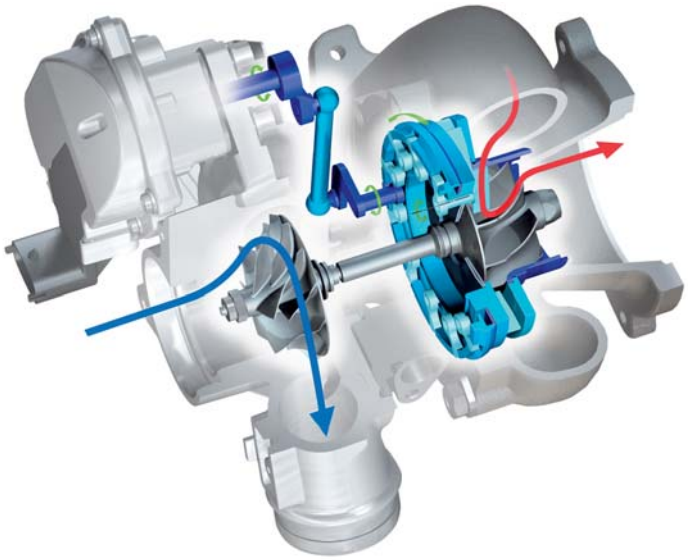


Fig. 24: Variable turbine geometry (VTG)

Control and adjustment

The boost pressure for engines with turbocharging is normally controlled by means of an air pressure-controlled waste gate. Charge air is channelled via a control line and an electric control valve to the diaphragm housing of the waste gate. The charge air pressure moves the piston in the diaphragm housing, whereby this piston is connected to the waste gate, through which the surplus exhaust gas can flow. In this way, surplus exhaust gas bypasses the turbine and the boost pressure is controlled and limited. The electric control valve and the boost pressure are controlled on the basis of control outputs from the Motronic controller. This complex control process, including the use of air as a compressible and thus elastic control medium, renders precise control of the boost pressure difficult.

In the new 911 Turbo, the boost pressure is controlled without a waste gate, via adjustment of the guide blades. This is carried out by means of an adjusting ring, which is actuated directly by an electric drive motor (electric actuator). The control outputs are supplied from the Motronic controller. The electric motor itself is an integral component of the overall variable turbine geometry module, into which it is integrated in space-saving configuration. The electric actuator enables the precision-controlled positioning of a mechanism installed on the output shaft. In order to achieve the desired engine torque, optimum adjustment angles are set according to the engine operating point by reference to variable turbine geometry characteristics stored in the engine control map. Advantages of control and adjustment via an electric actuator are the fast response time, the control quality for the desired boost pressure, improved diagnostics and fault detection.

When the throttle valve closes quickly (overrun), the boost pressure in the pressure system up-line of the throttle valve rises as a result of the compressor remaining in operation. The new 911 Turbo is also equipped with an automatically opening overrun air valve to blow off surplus boost pressure. Unlike in the 911 Turbo (996), however, this is not installed separately, but is integrated in compact, space-saving configuration in the compressor housing of the turbocharger with variable turbine geometry.

2.8 Sport Chrono Package Turbo (option)

The Sport Chrono Package Turbo option (I-no. 640) is available for the first time on the new 911 Turbo. The features correspond to the Sport Chrono Plus package which is familiar from the current 911 Carrera generation, plus the functions Overboost, PTM intervention and a modified moving off program in the Tiptronic S option.

Similarly to the Sport Chrono Plus package, the Sport Chrono Package Turbo offers the following basic features:

- Analogue and digital stopwatch on the dashboard
- Sport mode for engine, chassis (PASM) and transmission (Tiptronic S) incl. Sport button for activation
- Performance display in the PCM
- The ability to set/change individual memory settings

Additional Overboost function

Overboost involves briefly increasing the boost pressure (max. 10 seconds) for enhanced acceleration at full load (accelerator pedal fully pressed). This function is activated on pressing the Sport button on the center console. The increase in boost pressure is attained with the aid of the boost pressure control system and raises the maximum boost pressure by approx. 0.2 bar (2.9 psi) (+20 %). As a result, the maximum torque rises from 620 Nm (460 lb.-ft.) to 680 Nm (505 lb.-ft.) between 2,100 rpm and 4,000 rpm, enabling markedly improved acceleration and elasticity especially in the middle rev range.

The higher boost pressure gives rise to a sudden substantial increase in the mechanical stress on the components and, above all, in heat-induced stress. This results above all from the continually rising charge air and combustion chamber temperatures.

With regard to these processes and the maximum possible stress on the components, the Overboost function is limited to 10 seconds. After this period, the original full-load pressure without Overboost is set. As soon as the stress on the engine is relieved briefly as a result of closure of the throttle valve (e.g. after gear-shifting), the Overboost function can be activated again.

Overboost mode is indicated by an arrow symbol in the digital boost pressure gauge on the instrument dials. The arrow next to the boost pressure gauge indicates the brief Overboost, which is only possible when the Sport function is active (the word “SPORT” is to be seen on the display).

The Sport Chrono Package Turbo is complemented by more agile all-wheel-drive tuning and, in conjunction with optional Tiptronic S, by a modified starting program. When the “SPORT” button is pressed, drive-off is effected in 1st gear, instead of 2nd gear.

Fig.25: Air cleaner, air ducts, intercoolers

2.9 Intercoolers

The intercoolers have been adopted from the 911 Turbo (996) and optimized. In order to improve charge-air cooling, the ducts in the rear side sections of the body have been modified. By increasing the cross-section of each duct by approx. 10 % it has been possible to reduce flow resistance and to improve the air flow into the radiator cores. This results in more efficient intercooling for increased power and torque.

2.10 Air cleaner

A new air cleaner has been developed for the new 911 Turbo. By means of two-line intake via the rear lid (911 Turbo (996): single line), two individual hot-film air flow sensors and a new air cleaner element it has been possible to reduce the intake resistance, thereby optimizing the gas exchange.

The filter changing interval has also been extended considerably. On the new 911 Turbo the filters only need to be changed every 60,000 km (40,000 mi.) (as opposed to every 40,000 km (30,000 mi.) previously).

To enhance the appearance of the engine compartment, the upper part of the air cleaner (untreated air pan) which is visible on opening the rear lid has been provided with an aluminum design trim. This trim features embossed logos, amongst others “VARIABLE TURBINE GEOMETRY”.

Fig. 26: Intake distributor

Fig. 27: Exhaust system

2.11 Intake system

Both the intake pipes from the air cleaner to the compressor and the pressure pipes from the compressor to the throttle valve have been optimized in terms of flow characteristics and their resistance has been reduced. The intake distributor on the new 911 Turbo is again produced in plastic, now as a one-piece unit. In comparison to the intake distributor on the 911 Turbo (996) with separate aluminum inlet pipes, the one-piece design offers weight advantages and improved flow to the cylinder head.

The size of the intake distributor has also been adapted to the new turbocharger concept. In order to improve the design of the engine compartment, the intake distributor on the new 911 Turbo is painted silver. The weight has been cut by approx. 2 kg (4.41 lbs) in comparison to the intake system on the 911 Turbo (996).

2.12 Exhaust system

Parts of the exhaust system on the new 911 Turbo are new developments. The use of an optimized catalytic converter technology employing one converter per cylinder bank and improved secondary air injection during cold starting has led to a reduction in both emissions (Europe: EU4; USA: LEV II) and weight. The thin-wall design of the silencers results in weight advantages. Overall, the weight of the exhaust system has been reduced by approx. 4 kg (8.82 lbs) (16 %) in comparison to the 911 Turbo (996).

The tailpipes have been raised in comparison to the 911 Turbo (996) and are integrated in the rear apron as a characteristic design element on the new 911 Turbo, similarly to the Carrera GT. The new 911 Turbo also complies with all applicable noise regulations worldwide with one standard exhaust system.

2.13 Engine management

The new 911 Turbo has a new engine management system, ME 7.8.1. This is based on the ME 7.8 system of the 911 Turbo (996) and the optimization measures incorporated in the current 911 generation.

The ME 7.8 system features the following familiar basic functions:

- Hot film air mass metering
- Static high-voltage ignition system with individual ignition coils for each cylinder
- Sequential multipoint fuel injection
- Idling control via throttle valve
- Electronic throttle valve control
- Stereo lambda control with one lambda sensor up- and down-line of each catalytic converter
- VarioCam Plus control (continuous adjustment)
- Knock control with automatic adjustment of air/fuel mixture to compensate for variations in fuel quality

The ME 7.8.1 system in the new 911 Turbo incorporates the following additional features:

- Variable turbine geometry (VTG) control
- Exhaust gas temperature control to protect the components of the variable turbine geometry system via additional temperature sensors in the turbine housing
- On-board diagnostics via CAN bus
- Continuous lambda control
- Overboost control

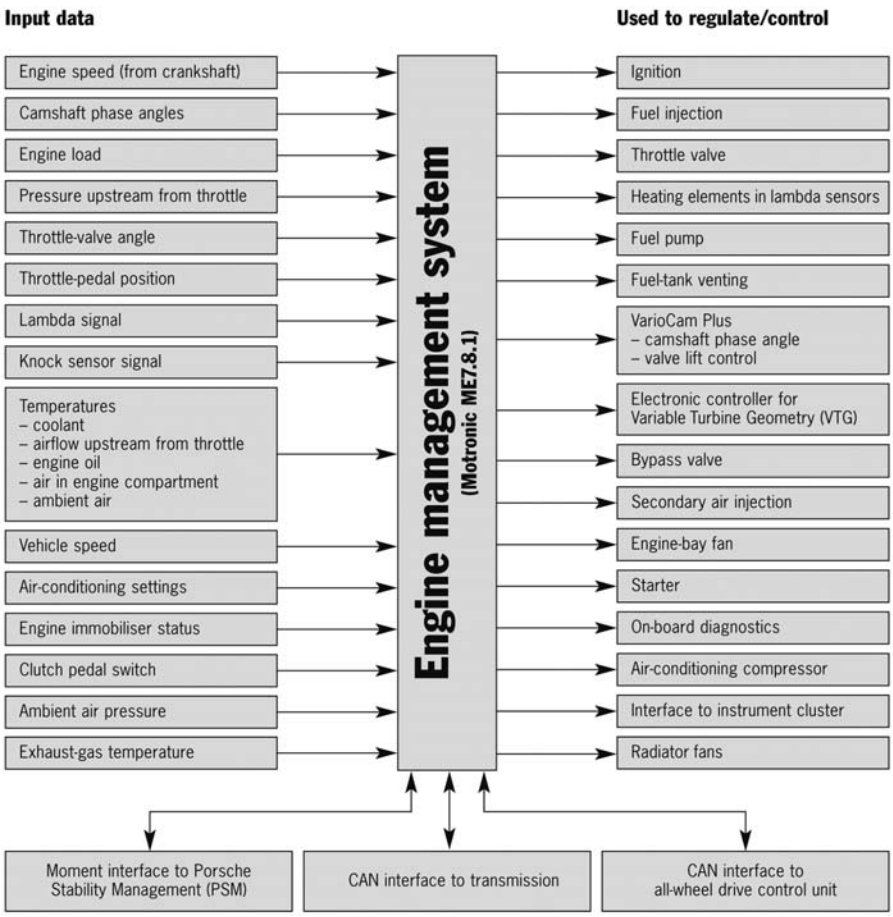


Fig. 28: Engine management

3 Transmission

3.1 Manual gearbox

The new 911 Turbo comes with a 6-speed manual gearbox as standard, featuring hydraulically assisted clutch operation. The transmission has been developed on the basis of the 911 Turbo (996) and features the following key changes:

- Reinforcement measures
- Improved cooling
- Adapted transmission ratios
- Shorter shift throws
- Carbon synchronizers

The transmission on the new 911 Turbo has been strengthened and the cooling improved, with regard to the higher power and torque requirements in comparison to the 911 Turbo (996). The reinforcement measures have been carried out above all in the area of the drive set (bevel/crown wheel) and the individual gear sets. Improved cooling has been achieved by modifying the ribbing on the gear housing and incorporating an additional new ventilation opening into the underbody lining in the area of the gear housing. Structural bracing on the gear housing additionally improves the emission of airborne noise, thus reducing unpleasant gearwheel noises.

In keeping with the current 911 generation, the individual ratios in 2nd to 6th gears have also been modified on the new 911 Turbo in accordance with the switch from 18-inch to 19-inch wheels and tires with an enlarged rolling circumference. The approx. 15% reduction in shift throw by moving the deflection point on the shift lever also corresponds to the current 911 generation. By means of multiple synchronisation it has nevertheless been possible to maintain the required shifting force in the new 911 Turbo at the same level as its predecessor in 1st gear, while in 2nd to 6th gears the required force has even been reduced by approx. 15 %.

The synchronizers have been altered on the new 911 Turbo. The 911 Turbo (996) featured a double sintered synchronisation mechanism in 1st and 2nd gears and a single sintered synchronisation mechanism in 3rd to 6th gears. The new 911 Turbo features a triple carbon synchronisation mechanism in 1st and 2nd gears and double carbon synchronisation mechanism in 3rd to 6th gears. The use of carbon provides improved stability and shifting comfort while maintaining the same service life.

The hydraulically assisted clutch operation which is familiar from the 911 Turbo (996) reduces the required pedal forces while also ensuring that the pedal forces remain constant throughout the service life of the clutch.

3.2 Tiptronic S

The 5-speed Tiptronic S transmission which is optionally available for the new 911 Turbo is a further development of the transmission employed in the 911 Turbo (996). In addition to the mechanical improvements resulting in greater strength for enhanced stability, the key focus has been on realising more dynamic shifting processes. With reduced gearshift and response times and the additional “Fast Back” function, the Tiptronic S transmission is even sportier on the new 911 Turbo.

Basic design

The familiar design incorporates a planetary gear set with torque converter and torque converter lockup clutch in 2nd to 5th gears. The torque converter lockup clutch has been improved substantially in comparison to the 911 Turbo (996), with less slip and faster speed adjustment, e.g. in response to load changes. This results in more spontaneous response to accelerator pedal commands and more dynamic acceleration.

In addition to the familiar functions from the 911 Turbo (996), the Tiptronic S on the new 911 Turbo also features the new “Fast Off” and “Fast Back” functions.

Fast Off

(Upshift suppression)
The Fast Off function has been extended for the new 911 Turbo. It is no longer necessary to release the accelerator pedal completely in order to initiate upshift suppression. This provides for further enhanced driving dynamics, particularly on winding stretches of road.

Fast Back

(downshifting before braking)
The additional new “Fast Back” function enables faster downshifting in connection with braking in support of a sporty, dynamic style of driving. If the driver switches from the accelerator to the brake pedal within 1.5 s, this function will initiate an automatic downshift by one gear. This supplementary function is exclusive to the Tiptronic S on the new 911 Turbo and supports the familiar “deceleration downshift” function.

Standard deceleration downshifts only involve downshifts in accordance with the braking deceleration. This results in a delay between the start of braking (activation of the brake pedal) and initiation of a downshift.

The “Fast Back” function reduces this delay time substantially. The first downshift is performed far more spontaneously than with the standard deceleration downshift function. Subsequent downshifts are performed in accordance with the standard “deceleration downshift” function. The “Fast Back” function cuts in ahead of the deceleration downshift function and supports automatic gear adjustment, e.g. when braking before a bend, to enable dynamic acceleration out of the bend.

4 All-wheel-drive Porsche Traction Management (PTM)

Intelligent all-wheel-drive Porsche Traction Management (PTM) comes as a standard feature for the first time in the high-performance 911 Turbo sports car to actively influence longitudinal and lateral dynamics. PTM enables the high performance potential of the new 911 Turbo to be exploited to the full. Enhanced driving stability, traction or more agile handling can be mobilized, according to the given driving situation. This means that the vehicle is highly agile on narrow country roads, offers outstanding traction and ensures a high level of driving safety in the high speed range, even when undertaking extreme manoeuvres.

Porsche Traction Management comprises the following systems:

- Full-time all-wheel drive with electronically controlled center differential lock to distribute torque between the front and rear axles
- Automatic brake differential (ABD) for improved traction
- Anti-slip regulation (ASR) to limit slip during acceleration and improve vehicle stability

A mechanical rear differential lock is an optional feature that can be added to the PTM.

Traction and dynamics

Porsche Traction Management (PTM) actively improves handling in the new 911 Turbo and provides enhanced traction. Strictly speaking, it is not actually possible to separate driving dynamics and traction, as the transitions are fluid within the systems. In example: Only when a vehicle has good traction, that is, when the tires do not build up excessive slip, can lateral forces be transmitted. This means steerability for the front axle and lateral stability for the rear axle. Spinning of the drive wheels can be reduced or, in ideal circumstances, eliminated entirely through the use of PTM.

The improvements in active handling with PTM in comparison to the viscous multiple-disc clutch on the 911 Turbo (996) are demonstrated most clearly in dynamic cornering on a slippery surface, e.g. on snow or wet roads.

If the vehicle oversteers, e.g. with spinning rear wheels, the viscous multiple-disc clutch will only result in drive torque being transmitted to the front axle according to the differential speed between the front and rear axles (slip). The level of drive torque is determined here by the specific characteristic of the viscous multiple-disc clutch. PTM results in electronically controlled power distribution to the front axle, whereby when necessary the oversteering correction function and the slip controller (see section 4.2, PTM control) enable a higher level of drive power to be transmitted to the front axle than applies in the case of the viscous multiple-disc clutch. This function results in active stabilization of the vehicle with additional power and acceleration of the front axle. Another advantage of PTM is that it takes the steering angle into account in distributing power to the front axle. In the event of countersteering by the driver in response to oversteering, for example, PTM will adapt the drive power to the front axle accordingly. This optimizes stabilization of the vehicle. These functions provide additional driving stability in comparison to the viscous multiple-disc clutch without compromising on driving dynamics and agility.

In the case of understeering in a bend under load, with the viscous multiple-disc clutch a level of drive power is distributed to the front axle according to the differential speed between front and rear axles (slip) which may in certain circumstances further diminish the steerability of the vehicle and increase the understeering tendency. In this situation, PSM brakes individual wheels to stabilize the vehicle and the vehicle cornering manoeuvre is slowed down. With PTM, the understeering correction function (see section 4.2, PTM control) reduces the drive power to the front axle in this situation. This enhances steerability and lateral stability at the front axle. The result is faster and active stabilization of the vehicle for quicker and more dynamic cornering, as there is less intervention by the PSM.

The improved traction with PTM in comparison to the viscous multiple-disc clutch on the 911 Turbo (996) is demonstrated most clearly when driving off and accelerating with spinning rear wheels. When driving off, the viscous multiple-disc clutch requires differential speeds at the front and rear axles before the drive power can be transmitted to the front axle. With PTM, the anticipatory control function (see section 4.2, PTM control) closes the PTM clutch directly on identifying a drive-off situation. As a result, all four wheels are supplied with the maximum possible drive power right from the first moment of the drive-off process and spinning wheels are largely avoided. During acceleration also, on the slip controller (see section 4.2, PTM control) detecting spinning wheels, PTM rapidly initiates more pronounced intervention by the multiple-disc clutch, thus increasing the drive power to the front axle and increasing traction overall.

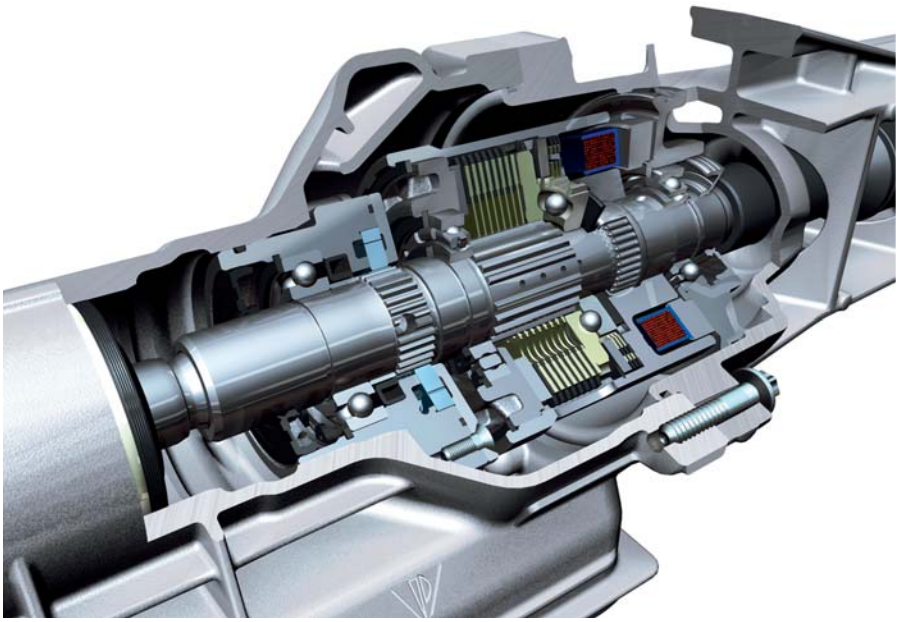


Fig. 29: PTM clutch

The control strategies for PTM have been closely linked to Porsche Stability Management (see also “Integrated chassis systems” in section 5.5). The distribution of drive power to the front and rear axles in accordance with the given requirements enables the four driven wheels to exploit the available potential for adhesion between road and tires to the full. The vehicle’s driving stability and steerability are noticeably enhanced and the Porsche Stability Management (PSM) control system intervenes less frequently to stabilize the vehicle. All-wheel drive is always active and cannot be deactivated.

4.1 Advantages offered by the PTM system

PTM offers the following advantages over the all-wheel-drive system of the 911 Turbo (996) with viscous multiple-disc clutch:

- Enhanced driving stability and traction in all driving situations, irrespective of the prevailing road conditions
- Improved manageability in extreme driving situations
- Improved straight-ahead tracking and stability in the high speed range through the specific distribution of additional drive power to the front axle
- Increased agility through the variable distribution of drive torque to the front axle according to the given driving situation

A mechanical rear differential lock is additionally available as an option for particularly sporty drivers. This lock supports PTM with further enhanced driving dynamics and traction, increases lateral acceleration and enables improved race track performance. Further information on the mechanical rear differential lock is to be found in section 4.4.

4.2 PTM control

The intelligent all-wheel-drive control system employed in the new 911 Turbo actively controls the distribution of drive torque between front and rear axles according to the given driving situation and the driver's wishes. To this end, PTM evaluates the various CAN networking variables, such as the current wheel speeds (all 4 wheels), lateral acceleration, longitudinal acceleration and steering angle. The aim of this torque distribution is to offer the driver excellent driving dynamics and traction and maximum driving safety at all times.

In the PTM controller, several functional sequences are tested in parallel, evaluated and integrated to produce a control strategy. This strategy determines the required locking torque of the interaxle clutch (PTM) for the given driving situation.

PTM comprises the following basic functions:

• Basic torque distribution
Continuously variable basic distribution of the current engine torque between front and rear axles in accordance with the current driving situation.

• Anticipatory control
Early detection of dynamic changes to the driving conditions in order to avoid slip.
Example (acceleration from a standing start, e.g. on loose surface or snow): Directly on detecting a drive-off situation, the PTM clutch is closed to such an extent as to largely rule out the possibility of spinning wheels. As a result, all four wheels are supplied with the maximum possible drive power as soon as the vehicle starts off and the fastest possible acceleration is achieved.

• Slip controller
Active prevention of axle slip to increase traction.
Example (additional acceleration with spinning wheels): If the wheels on the rear axle go into a spin during acceleration, for example, more pronounced intervention of the multiple-disc clutch results in the supply of more torque and thus more drive power to the front axle.

• Oversteering correction
Detection of vehicle oversteering and support of corrective action via torque redistribution.
Example (oversteering during cornering): If the vehicle oversteers while cornering as a result of external factors (e.g. black ice), more drive power will be distributed to the front axle in order to stabilize the vehicle's driving dynamics.

• Understeering correction
Detection of vehicle understeering and support of corrective action via torque redistribution.
Example (understeering during cornering): Before the vehicle understeers during cornering, more drive power is distributed to the rear axle in order to stabilize the vehicle's driving dynamics.

In addition to the basic functions, the PTM controller also incorporates higher-level control functions to ensure component protection.

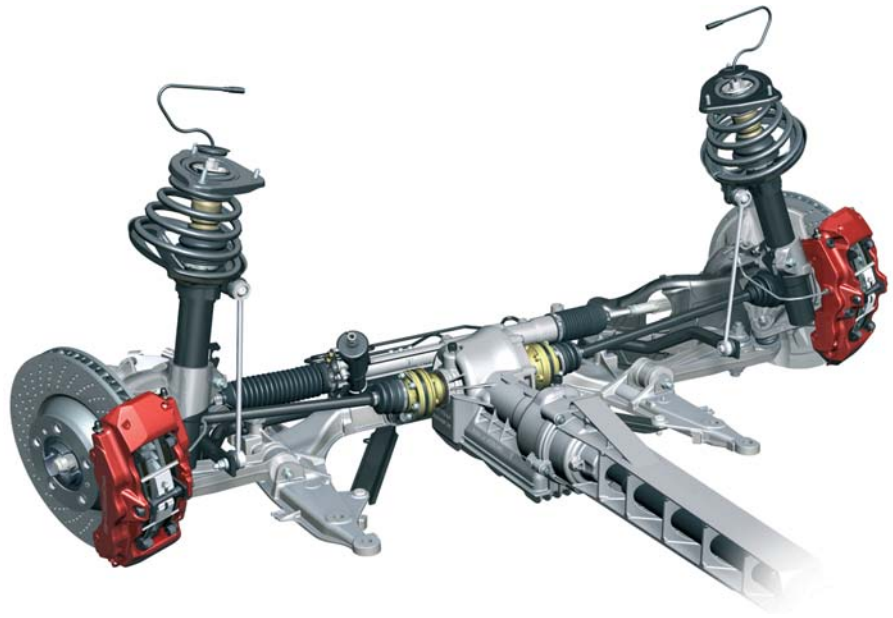


Fig. 30: Front axle drive

4.3 Front axle drive

The multiple-disc clutch of the Porsche Traction Management (PTM) system is accommodated in the housing of the front-axle drive. In conjunction with the new bolted-on torque support in the support system, these elements form a compact unit for the additional front axle drive.

The front-axle drive on the new 911 Turbo essentially corresponds to the drive on the predecessor model. The bevel/crown wheels have been strengthened on the 911 Turbo, on account of the higher levels of drive power.

The transmission ratio of the front-axle drive has been adapted to take into account the differences in wheel speed on the front and rear axles. As on the current 911 Carrera generation, the different wheel speeds result from the change in the rolling circumferences of the tires following the introduction of the 19-inch wheel generation.

4.4 Rear differential lock

As on the 911 Turbo (996), a mechanical rear differential lock with asymmetric split is also available as an option on the new 911 Turbo for particularly sporty drivers. As on the 911 Turbo (996), the locking values are 22 % (traction) and 27 % (overrun). On the new 911 Turbo too, the mechanical rear differential lock supports the driving dynamics of the controlled Porsche Traction Management (PTM) all-wheel-drive system, offering the following advantages:

- Higher traction on varying road surfaces and during cornering in extreme driving situations
- Improved driving stability during load changes while cornering in extreme driving situations
- Increased cornering agility at high levels of lateral acceleration in extreme driving situations

The optional rear differential lock is available on the new 911 Turbo exclusively in conjunction with manual gearbox.

5 Chassis

5.1 Driving dynamics

The following objectives have been pursued in developing the chassis of the new 911 Turbo in conjunction with the PTM all-wheel-drive system, in order to attain the typical Porsche driving characteristics:

- Maximum driving safety
- Excellent control, clarity and reproducibility
- A high level of driving enjoyment, agility and spontaneity
- Excellent driving comfort and high practicality
- Outstanding traction

5.2 Front axle

The proven front axle concept of the current 911 Carrera 4 models serves as the basis for the new 911 Turbo. Springs, dampers and anti-roll bars have undergone Turbo-specific modification and tuning.

Developments in comparison to the 911 Turbo (996):

- Track widened by 18 mm (0.71 in.)
- New front-axle cross member
- Modified pivot bearings
- Strengthened wheel bearings
- Hydro mounts on trailing link/wishbone for enhanced steering comfort

The modifications have been carried out on account of the increased component stress and the enhanced performance. Additional objectives were improved crash safety and brake cooling, weight reduction, more precise wheel guidance and enhanced steering comfort. The measures which have been undertaken result in improved driving dynamics for the 911 Turbo, with increased lateral acceleration and a reduction in the tendency of the body to tilt (rolling tendency).

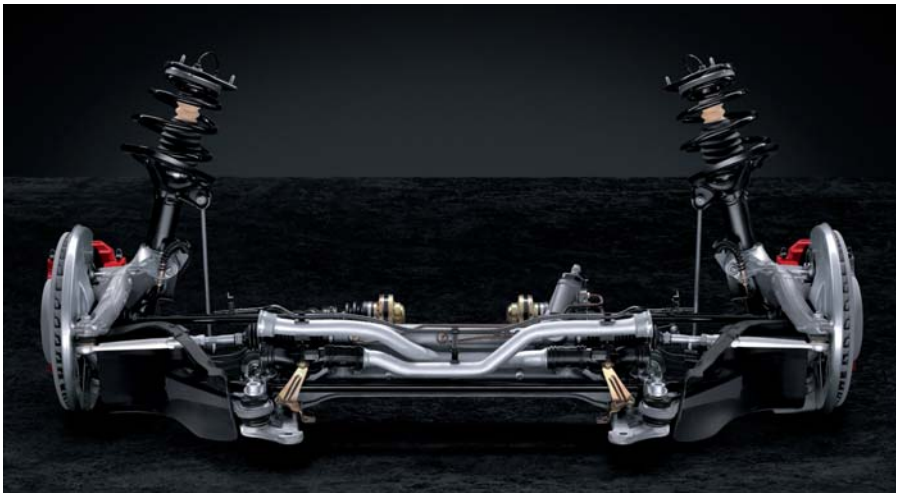


Fig. 31: Front axle

Steering

The steering system on the new 911 Turbo has been adopted from the current 911 Carrera generation. This means that in comparison to the 911 Turbo (996) the new 911 Turbo features a variable steering ratio, additional height adjustment of the steering wheel by 40 mm (1.58 in) and an electric steering wheel lock. Further information is to be found in the Product Information for the current 911 Carrera.

5.3 Rear axle

The LSA (light, stable, agile) multi-link rear axle on the new 911 Turbo is a further development of the axle from the 911 Turbo (996) and essentially corresponds to the axle on the current 911 Carrera generation. The springs and dampers have been specially tuned for the new 911 Turbo and anti-roll bars have been redesigned.

Developments in comparison to the 911 Turbo (996):

- Track widened by 20 mm (0.79 in.)
- Subframe and wheel carriers strengthened
- Use of lightweight suspension struts with aluminum dampers
- Use of supporting mounts with enhanced rolling comfort

The changes have been undertaken on account of higher component stress, weight reductions and enhanced performance and result in higher lateral acceleration and enhanced rolling comfort for the new 911 Turbo.

Fig. 32: Rear axle

5.4 Brake system

Standard brake system

The standard brake system for the new 911 Turbo has been increased in size to take account of the increase in power over the 911 Turbo (996) and represents a completely new development.

The front axle features improved brake ventilation and a 6-piston fixed caliper with a 42 % increase in pad area in comparison to the 911 Turbo (996). In addition to the larger internally vented brake discs on the front and rear axles, brake force distribution has been optimized on the new 911 Turbo via the use of a new 4-piston rear-axle fixed caliper. This exploits the potential inherent to the current 911 Carrera models with regard to the dynamic shifting of axle loads during braking to further enhance braking performance.

The new 911 Turbo is the first standard production vehicle from Porsche to feature active venting of the rear-axle brakes. Under the vehicle, the cooling air is channelled specifically to the rear brakes via additional openings, a flow channel and special control arm spoilers in the underpan. This results in a 14 % increase in cooling efficiency. On the front axle, the tried and tested ventilation concept from the 911 Turbo (996) has been further optimized by a newly developed control arm spoiler.

As a result, the new 911 Turbo offers outstanding vehicle deceleration and provides the driver with superior braking performance in all driving situations.

Tandem brake booster

Similarly to the current 911 Carrera 4 models, the new 911 Turbo also employs a 9-inch tandem brake booster rather than a 10-inch single brake booster. The compact tandem design has enabled a further increase in brake boosting performance in comparison to the predecessor model.

The total surface area of the tandem brake booster is around 45% larger than that of the single brake booster on the 911 Turbo (996). In conjunction with optimized brake force distribution and adapted dimensioning, it has been possible to reduce the required pedal force by approx. 20 %. A larger brake master cylinder ensures the typically Porsche

Fig. 33: Standard brake system

Fig. 34: Active venting of rear-axle brakes

precise, sporty pedal feel and perfect control of braking force.

Porsche Ceramic Composite Brake (PCCB)

As for the 911 Turbo (996), the Porsche Ceramic Composite Brake (PCCB) is also available as an option for the new 911 Turbo. The proven, optimized disc technology introduced on the 911 GT2 (996) and the 911 Turbo S (996) in model year 2005 also features on the new 911 Turbo. To attain a further increase in brake power, the disc diameter on the front axle has been increased from 350 mm (13.78 in) on the 911 Turbo (996) to 380 mm (14.96 in). This size of brake disc is also employed on the front and rear axles of the Carrera GT and on the front axle of the new 911 GT3 and 911 GT3 Cup (997).

The most important changes resulting from this optimized disc technology relate to the shaping of the inner cooling ducts to achieve increased ventilation accompanied by enhanced brake cooling and rigidity and the composition of the employed materials, resulting in increased wear resistance. The overall outcome is an increase in the performance of the brake system and a further extension of the brake system's service life.

Fig. 35: Porsche Ceramic Composite Brake (PCCB)

The optimized Porsche Ceramic Composite Brake (PCCB) offers the familiar advantages over a brake system with steel brake discs:

- Faster response
- Very high fading stability thanks to consistent friction values
- High safety reserves under high levels of stress
- Approx. 50 % lighter than grey cast iron brake discs of the same design and dimensions
- Brake discs insensitive to corrosion

Overview of brake systems	**Standard brake system**		**Optional PCCB**	
	New 911 Turbo (997)	911 Turbo (996)	**New 911 Turbo** (997)	911 Turbo (996)
Standard/optional	Standard	Standard	Optional	Optional*
Disc technology	Steel	Steel	Ceramic **optimized**	Ceramic*
Front axle				
Brake calipers	**6-piston** monobloc fixed calipers	4-piston monobloc fixed calipers	6-piston monobloc fixed calipers	6-piston monobloc fixed calipers
Disc diameter mm (in)	**350 (13.78)**	330 (12.99)	**380 (14.96)**	350 (13.78)
Disc thickness mm (in)	34 (1.34)	34 (1.34)	34 (1.34)	34 (1.34)
Surface area per brake pad cm^2 (sq. in.)	**112.0 (17.36)**	78.5 (12.17)	112 (17.36)	112 (17.36)
Rear axle				
Brake calipers	4-piston monobloc fixed calipers	4-piston monobloc fixed calipers	4-piston monobloc fixed calipers	4-piston monobloc fixed calipers
Disc diameter mm (in)	**350 (13.78)**	330 (12.99)	350 (13.78)	350 (13.78)
Disc thickness mm (in)	28 (1.10)	28 (1.10)	28 (1.10)	28 (1.10)
Surface area per brake pad cm^2 (sq. in.)	62 (9.61)	62 (9.61)	62 (9.61)	62 (9.61)

* 911 Turbo S (996): PCCB as standard already incorporating optimized ceramic disc technology.

5.5 Chassis systems

Porsche Stability Management (PSM)
Similarly to the new 911 Carrera 4 models, the new 911 Turbo is also equipped with the optimized PSM vehicle stabilization system. This system improves the braking functions and above all active safety via the following additional functions:

- Improved braking readiness (through prefilling of the brake system)
- Brake assist

Further information on PSM is to be found in the Product Information for the current 911 Carrera / 911 Carrera S.

Porsche Traction Management (PTM)
See description in section 4, All-wheel drive Porsche Traction Management.

Porsche Active Suspension Management (PASM)
Similarly to the current 911 Carrera S models, the new 911 Turbo also features Porsche Active Suspension Management (PASM) with actively adjustable dampers as standard. The system components have undergone new tuning specifically for the new 911 Turbo. Further information on PASM is to be found in the Product Information for the current 911 Carrera models.

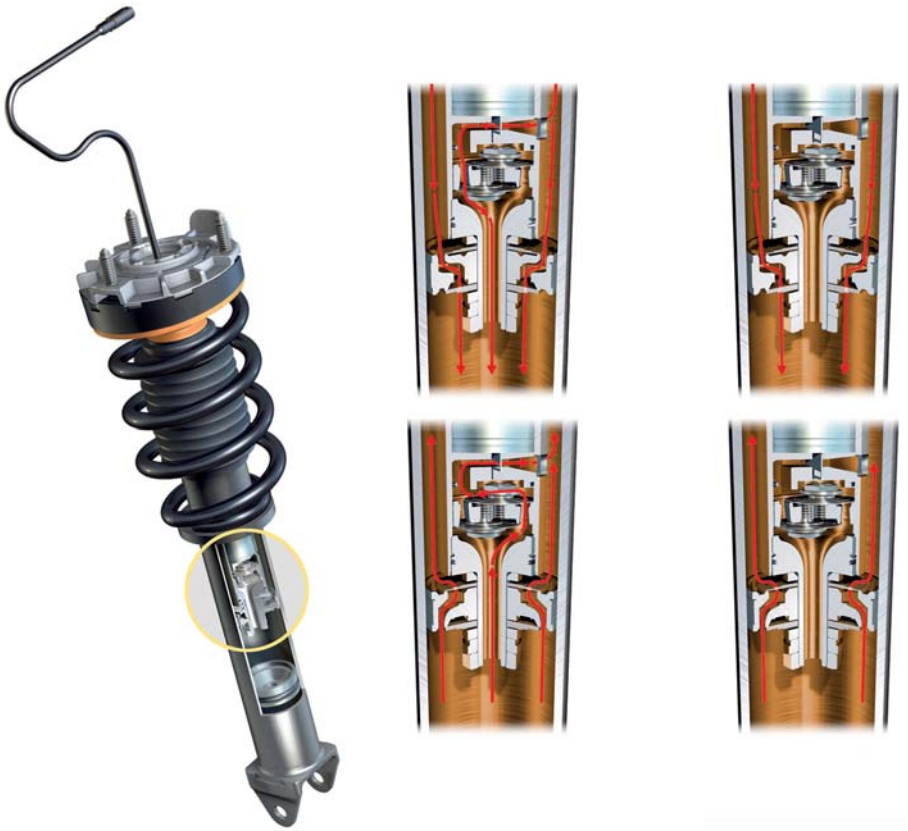


Fig. 36: Porsche Active Suspension Management (PASM)

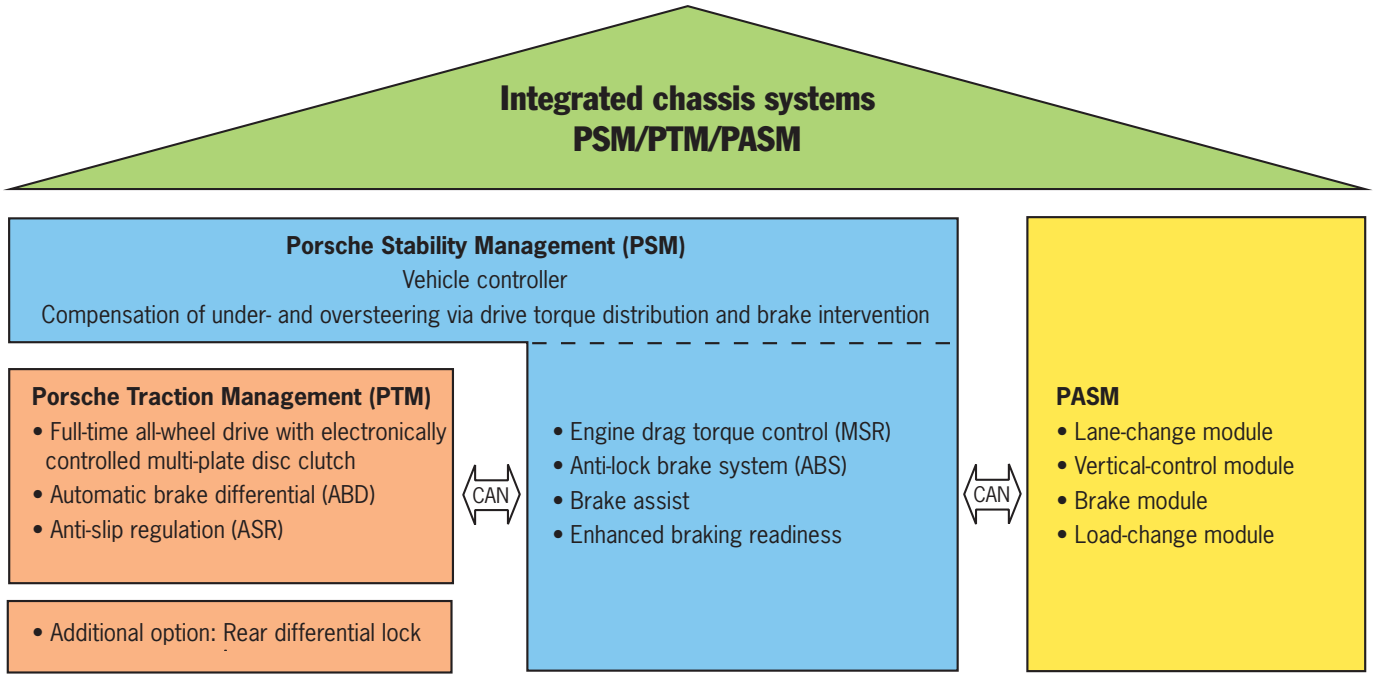


Fig. 37: Integrated chassis systems

Integrated chassis systems

The PSM, PTM and PASM chassis systems are inter-networked on the new 911 Turbo. Information (e.g. current driving conditions) is exchanged continuously via CAN bus. Interaction between the systems is necessary in particular to attain maximum driving stability and the shortest possible braking distances. In the event of braking involving ABS, for example, the higher-level vehicle controller initiates opening of the all-wheel interaxle clutch and PASM sets the optimum damper characteristic.

5.6 Wheels and tires

A new 19-inch wheel has been developed exclusively for the new 911 Turbo. Its characteristic features are its distinctive, forged design and its two-tone appearance. The forged design enables both high dimensional stability and optimum weight and strength, while the two-tone look with the titanium-colored spoke edges and polished front emphasizes the depth effect and high-quality appearance. In addition, the new 911 Turbo includes Tire Pressure Monitoring (TPM) as standard worldwide for enhanced passive safety.

Technical data		**New 911 Turbo** (997)	911 Turbo (996)
Wheels		**19-inch Turbo wheel**	18-inch Turbo wheel
Front axle	Wheels	**8.5J x 19**	8J x 18
	Tires	**235/35 ZR 19**	225/40 ZR 18
	Rim offset	**56 mm (2.21 in)**	50 mm (1.97 in)
Rear axle	Wheels	11J x **19**	11J x 18
	Tires	**305**/30 ZR **19**	295/30 ZR 18
	Rim offset	**51 mm (2.01 in)**	45 mm (1.77 in)
Wheel center		**Monochrome Porsche Crest**	With “turbo” logo
Tracks			
Front axle		**1,490 mm (58.71 in)**	1,472 mm (58.00 in)
Rear axle		**1,548 mm (60.99 in)**	1,528 mm (60.20 in)

Fig. 38: 19-inch Turbo wheel

The wheel center has a monochrome Porsche Crest. In connection with the redesign of the chassis and the further increase in the width of the body at the rear, the track has been widened in comparison to the 911 Turbo (996) by 18 mm (0.71 in) to 1,490 mm (58.71 in) at the front axle and by 20 mm (0.79 in) to 1,548 mm (60.99 in) at the rear axle.

In combination with the wider wheels (front axle) and wider tires (front and rear axles), these measures enable improved anti-rolling stability and greater lateral acceleration potential. The end result is even sportier performance with higher maximum possible cornering speeds and enhanced active safety.

Tire repair kit

Similarly to the current 911 Carrera generation, the new 911 Turbo also comes with a tire repair kit. This does away with the need for the collapsible spare tire and jack which were provided for the 911 Turbo (996), resulting in a reduction in the vehicle’s weight of approx. 14 kg (30.9 lbs) and additional luggage compartment space. An emergency wheel is mandatory in Saudi Arabia, Guatemala and the Virgin Islands. Consequently, a 17-inch emergency wheel in size 185/60 R 17 is provided in these countries in addition to the tire repair kit.

5.7 Tire Pressure Monitoring (TPM)

The new 911 Turbo is equipped worldwide with Tire Pressure Monitoring as standard, offering continuous monitoring of the air pressure in each individual tire.

Apart from affording greater protection from possible tire damage, the simple means of verifying the correct tire pressure offered by TPM alerts the driver in particular to gradual pressure loss in individual tires and thus to uneven tire wear and unnecessarily high fuel consumption. Correct air pressure is crucial to safe driving and high driving dynamics.

6 Body

The wide body of the new 911 Turbo is essentially based on that of the current 911 Carrera 4 models. The new exterior design of the current 911 generation has been adopted, including the new headlight generation, bow type handles, the aluminum luggage compartment lid and the rear window wiper (option without extra charge).

As on the 911 Turbo (996), the Turbo-specific elements such as the front and rear aprons, the rear side sections with the additional air inlets for the intercoolers and the rear lid with widened extending split wing element have been redesigned as distinguishing features.

The doors and rear center section in aluminum, the bar-shaped LED indicators at the front, the separate fog lights in the front apron and the tailpipes integrated into the rear apron all represent distinctive features which have been developed specifically for the new 911 Turbo.

6.1 Doors and lids

In keeping with the current 911 generation, the new 911 Turbo also has an aluminum luggage compartment lid. This results in a weight reduction of approx. 6 kg (13.2 lbs) in comparison to a sheet steel lid.

A new feature is the use of aluminum for the doors, too. For the first time, the new 911 Turbo features doors made of aluminum. This results in a weight reduction in comparison to a steel design of approx. 7 kg (15.4 lbs) per door.

Integration of the fastening points in the die-cast aluminum door frames provides easy fitting and minimal tolerances. This ensures a stable production process with high quality assurance.

6.2 Fenders and quarter panels

In the context of the revamped exterior styling, the new 911 Turbo adopts the front fenders with oval headlights which are familiar from the current 911 Carrera generation. The rear quarter panels including air inlets for the intercoolers have been fully redesigned on the basis of the 911 Turbo (996) and have acquired a new shape. The widening of the rear quarter panels results in an overall body width of 1,852 mm (72.91 in). This makes the new 911 Turbo 22 mm (0.87 in) wider than its predecessor.

Both the side skirts in black plastic which are familiar from the 911 Turbo (996) and the air inlets for the cooling channels of the intercoolers have been optimized to facilitate fitting and for enhanced aerodynamics, and their shaping has been adapted to the styling of the new rear side sections. Protection from stone impact is ensured by the Turbo-specific side skirts and the modified protective film in the lower area of the rear wings.

The aerodynamic optimization of the air inlets for the intercoolers and the widening of the flow channels to the intercoolers by approx. 10 % result in more efficient flow and subsequent improved cooling of the charge air. The overall outcome is enhanced engine performance.

Overview of body widths	**New 911 Turbo** (997)	911 Turbo (996)	Difference	911 Carrera 4/S (997)
with door mirrors	1,937 mm (76.32 in)	1,937 mm (76.32 in)	0 mm (0 in)	1,937 mm (76.32 in)
without door mirrors	1,852 mm (72.91 in)	1,830 mm (72.10 in)	+ 22 mm (+ 0.87 in)	1,852 mm (72.91 in)

6.3 Front apron

The front apron on the new 911 Turbo is a completely new development. The new, striking styling which clearly stands apart from the other 911 models and the aerodynamic and thermodynamic optimization measures result in the following changes in comparison to the 911 Turbo (996):

- Larger air openings to satisfy the increased cooling requirements
- Air ducts with improved flow characteristics
- Integration of bar-shaped indicators, incl. marker light
- Integration of separate fog lights
- Air duct behind the front spoiler lip for improved brake cooling

The increased engine power of the new 911 Turbo in comparison to the predecessor model imposes higher requirements on engine cooling and thus on the radiators at the front of the vehicle. Apart from the improvements to the radiators, the front apron also possesses larger air inlets for the radiators than the 911 Turbo (996).

A special feature is the bar-shaped indicator lights featuring LED technology. They constitute integrated elements of the front apron as bar-shaped lights in the side cooling-air openings. The separate projector-type fog lights which have been specially developed for the new 911 Turbo are also integrated into the front apron. For functional reasons, these are positioned low and far out to the sides of the front apron.

Fig. 39: Front apron

6.4 Rear apron

The rear apron on the new 911 Turbo is a completely new development. In addition to the redesigned air outlets for the exhaust air from the intercoolers, the new 911 Turbo also incorporates integrated tailpipes. These design features integrated into the rear apron are being introduced for the first time on the new 911 Turbo and serve as striking distinguishing features. In order to protect the rear apron from the high temperatures emitted by the tailpipes, a cover consisting of high-temperature-resistant plastic which is able to withstand temperatures of up to 280 °C (536 °F) is fitted in the area of the tailpipe outlet.

Fig. 40: Rear apron

Fig. 41: Split wing element

6.5 Rear lid with extending split wing element

The rear lid with extending split wing element has been developed on the basis of the 911 Turbo (996). The specific shaping of the new wing profile provides for a further improvement in aerodynamics. Due to its greater effectiveness, the extension height has been redefined in the interests of well-balanced aerodynamics. The extension height on the new 911 Turbo stands at 35 mm (1.38 in), as opposed to 70 mm (2.76 in) on the 911 Turbo (996).

The underside of the lid incorporates a new engine compartment light, improved attachment of the fan connection and two separate intake ports for the air cleaner.

6.6 Flow channel for the intercoolers

The flow channels in the rear side sections for the intercoolers have undergone further development on the basis of the 911 Turbo (996). The production process for the plastic components has been modified, resulting in an enlarged channel cross-section with narrower process tolerances. This results in an approx. 10 % reduction in flow resistance and higher air throughput rates for more efficient intercooling and increased power and torque. The air inlet trims in the rear side sections have also been revised. They feature a characteristic design for the new 911 Turbo, including an additional rib in the middle of the air inlet. The shaping and positioning of this rib have been carefully selected to avoid impairing inflow into the flow channel, despite a slight reduction in the cross-section.

The outlet ducts from the intercoolers have been adopted from the 911 Turbo (996) and adapted to the new rear end.

6.7 Underbody lining

The underbody lining has been largely adopted from the current 911 Carrera 4 models. The main difference in the underbody lining in comparison to that on the 911 Turbo (996) consists of two additional lining components in the middle area next to the center tunnel. The 4 ventilation openings at the front of the underbody lining for cooling the front-axle drive have been optimized. The new 911 Turbo is also the only model within the 911 model line to feature additional ventilation openings in the rear underbody lining to cool the rear brake system and the gear box.

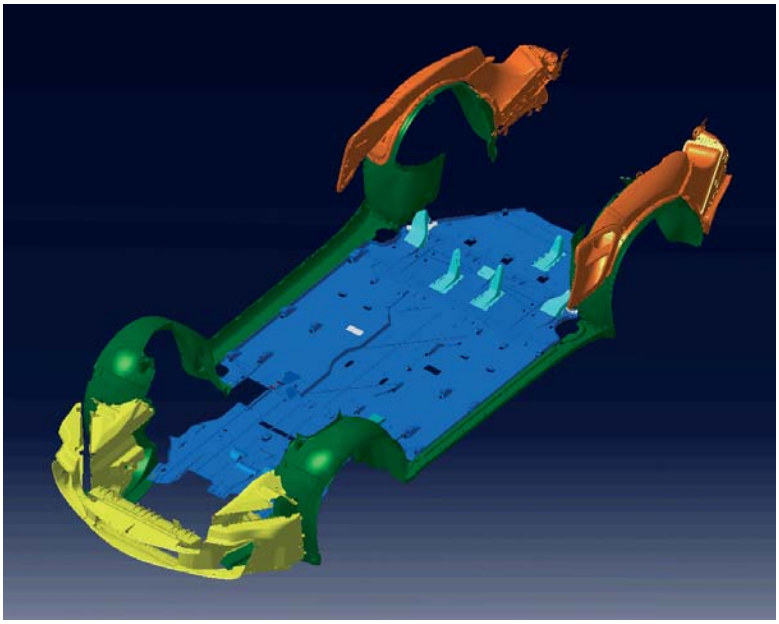


Fig. 42: Underbody lining (blue section)

6.8 Tank

The tank on the new 911 Turbo corresponds to that on the current 911 Carrera 4 models. At approx. 67 l (17.7 gal.), the tank capacity is approx. 4 l (1.1 gal.) greater than that of the 911 Turbo (996).

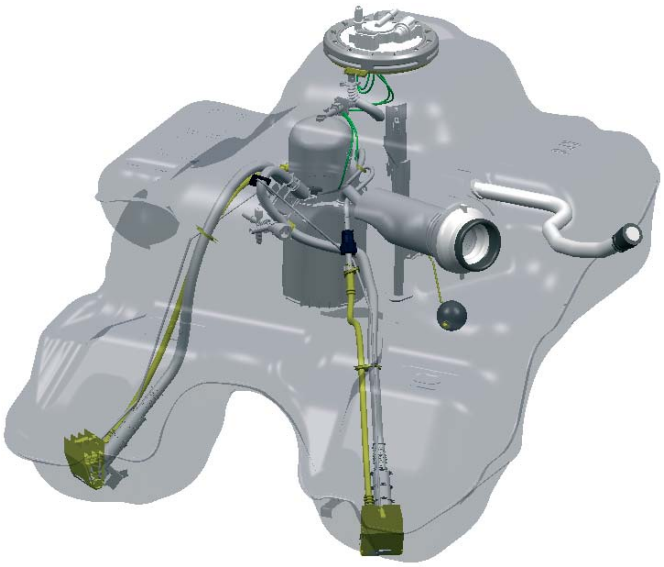


Fig. 43: Tank

Overview of tank capacities Figures stated in liters (gallons)	**New 911 Turbo** (997)	911 Turbo (996)	911 Carrera 4 (997)	911 Carrera (997)
	67 (17.7)	63 (16.6)	67 (17.7)	64 (16.9)

6.9 Luggage compartment

Similarly to the current 911 generation, the new 911 Turbo also comes with a tire repair kit. As a result, it has been possible to omit the collapsible spare tire and to adopt the luggage compartment form of the current 911 Carrera 4 models. The luggage compartment capacity has thus been increased by approx. 5 l in comparison to the 911 Turbo (996) in Europe and RoW, and now stands at approx. 105 l (27.7 gal.).

Similarly to the current 911 Carrera models, in the USA, Canada and Mexico the new 911 Turbo is equipped with an additional active charcoal filter, to meet existing emission laws. The additional space required by the active charcoal filter has resulted in repositioning of the electric modules in the luggage compartment. This results in a slight reduction in luggage compartment capacity of these vehicles in comparison to vehicles for Europe and RoW, to 95 l (25.1 gal.).

USA-, Canada- and Mexico-vehicles additionally incorporate the familiar emergency release in the luggage compartment for the luggage compartment lid (trunk entrapment).

Fig.44: Luggage compartment

Overview of luggage compartment capacities Figures stated in liters (gallons)	**New 911 Turbo** (997)	911 Turbo (996)	911 Carrera 4/S (997)
	95 (25.1)	100 (26.4)	105 (27.7)

7 Aerodynamics

The new 911 Turbo emulates the 911 Turbo (996) in setting the standards in its competitive environment, with a drag coefficient of c_d = 0.31 and extremely low lift coefficients which have been carefully coordinated between the front and rear axles. Despite the less favorable aerodynamic parameters resulting from the increased levels of cooling air required by the radiators, intercoolers and the brake cooling system, the wider rear tires and the further widening of the body as a whole, the new 911 Turbo matches up to the excellent c_d value attained by the 911 Turbo (996). The slight downforce at the rear axle of the 911 Turbo (996) has even been improved slightly on the new 911 Turbo. In terms of aerodynamics, the new 911 Turbo is at the forefront of the market segment of high-performance sports cars. Extensive optimization work covering numerous details has been necessary in order to achieve this.

The redesigned spoiler lip on the front apron reduces the air flow under the vehicle, thereby providing favourable lifting forces at the front axle. The two openings in the spoiler lip in combination with the brake air ducts serve to cool the high-performance brakes. The cross-section of the brake air ducts has been increased substantially in comparison to the 911 Turbo (996) and they are now employed in combination with new brake air deflectors offering a larger effective surface area which are fixed to the chassis. This results in a further improvement in brake ventilation on the front axle.

A new feature is the brake ventilation system on the rear axle, which has been specially developed in view of the increased power level of the new 911 Turbo in comparison to the predecessor model. The cooling air is channelled through so-called NACA air inlets (NACA stands for National Advisory Committee for Aeronautics) to air ducts in the rear underbody lining, from where it is guided to newly developed brake air deflectors which are fixed to the control arm at the rear axle and then on to the brake disc.

The familiar routing principle for the supply of cooling air to the radiators which has proven highly effective in terms of aerodynamics on the 911 Turbo (996) is employed once again on the new 911 Turbo. In order to meet the engine's increased cooling requirements and to ensure the necessary flow of cooling air, however, the air inlet openings have been modified in comparison to the predecessor to incorporate a so-called "bypass". This opening connecting the central and side cooling air openings enables markedly more efficient air distribution to the three radiators in the front apron.

As a further improvement, an aerodynamically shaped deflection blade has additionally been fitted to the bottom of the front apron for the exhaust air from the central radiator. The deflection blades for the side radiators have been enlarged. These measures ensure that the increased level of cooling air required by the powerful engine can be supplied while at the same time maintaining the lifting force at the front axle at the level achieved by the 911 Turbo (996).

Fig. 45: Cooling concept

Overview of aerodynamics	**New 911 Turbo** (997)	911 Turbo (996)	911 Carrera (997)	911 Carrera S (997)	911 Carrera 4 (997)	911 Carrera 4S (997)
c_d	0.31	0.31	0.28	0.29	0.30	0.29
A [m^2]	**2.04**	2.00	2.00	2.00	2.04	2.04
c_d x A [m^2]	**0.63**	0.62	0.56	0.58	0.61	0.59

The successful principle of the extending split wing element on the rear lid has been adopted from the 911 Turbo (996). Apart from avoiding lift (reduced load on the rear wheels), this principle attains a slight downforce, without noticeably impairing the drag coefficient. As on the 911 Turbo (996), the split wing element extends at a speed of approx. 120 km/h (74.6 mph) and retracts again at approx. 60 km/h (37.3 mph). With regard to the wide body of the new 911 Turbo, the split wing element has been enlarged in comparison to the predecessor model and its design has been modified for greater aerodynamic efficiency.

The aerodynamic fine tuning at the front and rear end has been designed to ensure an optimum balance between the lift coefficients at the front and rear axles. The aerodynamically optimized side skirts improve the air flow around the rear wheels in comparison to the 911 Turbo (996).

To further improve aerodynamics, the underbody on the new 911 Turbo is lined with a total of 5 (Tiptronic S) or 6 (manual gearbox) large polypropylene panels extending from the front axle to in front of the engine. The enlarged and additional lining components result in an almost two-fold increase (approx. 97 %) in the total surface area of the underbody lining on vehicles with manual gearbox in comparison to the predecessor model. Consequently, the air flow under the vehicle is substantially less prone to turbulence and loss at higher air speeds. This leads to improvements with regard to drag and lifting forces.

Four coordinated ventilation ducts in the front underbody lining serve to ventilate the front-axle drive. The rear underbody lining on the new 911 Turbo incorporating ventilation measures in line with the given requirements ensures a sound temperature balance for the manual gearbox positioned over the rear axle and, in particular, the high-performance Tiptronic S transmission.

Apart from providing for harmonious lines, the form of the side skirts and the spoilers geared to the new tire sizes in front of the rear wheels also ensure that the air flow around the wheels offers the same aerodynamic efficiency as on the 911 Turbo (996).

8 Interior

8.1 Equipment

The interior of the new 911 Turbo has been largely adopted from the current 911 Carrera S models. The changes to the basic equipment in the new 911 Turbo in comparison to the 911 Turbo (996) are as follows:

- New interior design
- New steering wheel and seat generation
- Additional height adjustment of the steering wheel
- Advanced Airbags
- New side airbag system (door trim panels: head airbag; seats: thorax airbag)
- More forward positioning of the pedals
- Lower seat position
- HomeLink®
- Tire Pressure Monitoring System

The new 911 Turbo incorporates the following distinguishing features to differentiate it within the current 911 generation:

- Distinctive gear lever
- "turbo" logos on the door entry guards and the rev counter

In addition to the revised basic equipment, similarly to its predecessor the new 911 Turbo also incorporates the following upgrading interior options as standard:

- Leather interior
- Fully electric seats with lumbar support
- Automatically dimming interior/door mirrors with integrated rain sensor
- Navigation module for PCM
- BOSE® Surround Sound system
- Additional feature not included in the 911 Turbo (996): 3-spoke sports steering wheel in smooth leather

Fig. 46: 911 Turbo interior

Fig. 47: 911 Turbo gear lever

The rear window wiper – a standard feature on the 911 Turbo (996) – is no longer part of the standard equipment in accordance with customer requests, but can be ordered without extra charge.

9 Electrics

The electrical features of the new 911 Turbo largely correspond to those of the current 911 generation. For detailed information, please refer to the corresponding Product Information.

Key features adopted from the current 911 generation:
- New headlight and tail light design
- Electronic ignition lock with new ignition keys
- New instrument dials
- New switches and controls in the center console
- Optimized interior lighting, incl. footwell lighting
- Multi-function steering wheel (optional)
- Additional stopwatch on the dashboard (with optional Sport Chrono Package Turbo)
- Advanced Airbags (passenger seat occupancy detection)
- Networking of control units via CAN bus
- Networking of audio and control data via MOST bus

Features specific to the new 911 Turbo:
- Front indicator lights featuring LED technology
- Separate fog lights
- Instrument dials with adapted display

9.1 Front and rear lights

The standard Bi-Xenon headlights as well as the tail lights of the new 911 Turbo correspond to those of the current 911 generation.

Front indicators

The high-performance indicators incl. marker lights are a stylistic innovation and have been developed especially for the new 911 Turbo. The bar-shaped indicators are integrated into the side air inlets in the front apron as a characteristic design element. Apart from ensuring adequate illumination, a further objective in designing these elements was to ensure that the air flow to the radiators behind the elements remained largely unaffected, so as to avoid any negative impact on radiator performance. This requirement is met through the compact design of the LED technology, which also offers a long service life of over 10,000 hours (conventional bulbs: 200 – 1,000 hours).

Fog lights

Similarly to the front indicators, the fog lights in the front apron also represent a characteristic design element of the new 911 Turbo. They are located at the sides in the outer shell of the front apron. In designing the fog lights too, consideration had to be given to the air flow around these components so as to ensure the minimum possible interference with the aerodynamics and the flow of air to the radiators. The fog lights have consequently been produced in an extremely compact design. In order to nevertheless ensure the desired light values, high-quality lighting technology is used on the new 911 Turbo. The reflector-type lighting which is familiar from the 911 Carrera models is replaced on the new 911 Turbo with projector-type lighting. Rather than directing the light from the light source onto the road via a reflector and a glass (reflector-type lighting), it is projected onto the road via a reflector and a lens (projector-type lighting).

Fig. 48: Front indicators and fog lights

Third brake light

As on the 911 Turbo (996), the high-mounted brake light is integrated flush into the rear edge of the rear lid. Similarly to the front indicators, the third brake light on the new 911 Turbo also features LED technology. Apart from longevity, a further key advantage of the use of LED technology for the third brake light is its fast response. LEDs have a response time of approx. 0.1 ms, as compared to approx. 100 ms for conventional bulbs. This difference translates into a distance of almost 15 feet at 60 mph. Earlier indication of an intention to brake means more time for other drivers to react and thus enhances passive safety.

Fig. 49: Boost pressure display

Fig. 50: Overboost pressure display

9.2 Instruments

The instruments with aluminum-colored dials have been adopted from the current 911 Carrera S models. The new 911 Turbo also features a “turbo” logo in the rev counter. The scales on the rev counter and speedometer have been adapted to the Turbo-specific engine and performance data. As a new feature, the boost pressure is now digitally displayed on the instrument dials. It is represented by a bar in the bottom matrix display on the rev counter. The boost pressure is presented as a digital value and in graphic form on the multi-function display. The scale for the graphic display extends up to 1.0 bar (14.7 psi), or up to 1.2 bar (17.6 psi) when the Sport Chrono Turbo option is active.

9.3 Networking

Similarly to the current Boxster and 911 models, the high-speed networks CAN bus (Controller Area Network) and MOST bus (Media Orientated System Transport) also enable the exchange of data and information throughout the vehicle in the new 911 Turbo. This networking of the different control units entails the following advantages:

- Engine management with high-speed information exchange
- Coordination of the networked control systems
- Joint transmission of digital audio and control data in the area of audio/communication (MOST bus)
- Reduced vehicle weight

9.4 HomeLink®

For the first time HomeLink® is being offered on the new 911 Turbo models. HomeLink®, which ist standard on the 997 Turbo was introduced in the current 911 generation. It comprises a freely programmable remote control integrated in the vehicle. It is able to control up to 3 garage and outside doors, lighting systems and alarm systems and is compatible with virtually all garage and outside door drives.

10 Audio and communication

Like the 911 Turbo (996), the new 911 Turbo also features Porsche Communication Management (PCM) incl. navigation module as standard. In keeping with the new 911 generation, the BOSE® Sound system which featured as standard on the 911 Turbo (996) has been upgraded to the BOSE® Surround Sound system.

The essential changes to the audio and communication features have been adopted from the current 911 generation. For detailed information, please refer to the corresponding Product Information.

Established features on the basis of the 911 Turbo (996), including upgrading in line with the current 911 generation:

- Porsche Communication Management (PCM)
- Navigation module
- BOSE® Surround Sound system
- Telephone module (option)

New features not included in the 911 Turbo (996), in keeping with the current 911 generation:

- Extended navigation system (option)
- Electronic logbook (option)
- Mast antenna (option)

10.1 Porsche Communication Management (PCM)

The revised PCM which features in the current 911 generation, incorporating a larger screen (5.8-inch) than was available in the 911 Turbo (996), is also installed in the new 911 Turbo. The main changes in the revised system are integration into the new overall design, the white LED lighting and the possibility of using the CD drive exclusively for audio CDs. The DVD-navigation drive has been relocated to the luggage compartment. In addition, various PCM functions are supported by the optional multi-function steering wheel.

Other new PCM features, which were introduced as model improvements on the 911 Carrera models in April 2005, are the possibility of playing MP3 audio data on CD in the PCM drive and the improved mute function.

	New 911 Turbo (997)	911 Turbo (996)
Product name	BOSE® Surround Sound system	BOSE® Sound system
Loudspeakers	**13 (incl. centerfill as additional loudspeaker in the center of the dashboard)**	12
Dashboard	2 x **2.5** cm (0.79 in) neodymium tweeters **1 x 7.0** cm (2.76 in) mid-range speaker (centerfill)	2 x 4.3 cm (1.69 in) neodymium tweeters 2 x 8.9 cm (3.51 in) mid-range speakers
Doors	2 x **8.0** cm (3.15 in) **neodymium** mid-range speakers **2 x 20.0 cm (7.88 in) Nd® low-range speakers**	2 x 11.4 cm (4.49 in) low-range speakers each in its own 5.5 l bass reflex housing
Rear side speakers	2 x **2.5** cm (0.79 in) neodymium tweeters 2 x **8.0** cm (3.15 in) **neodymium** mid-range speakers	2 x 4.3 cm (1.69 in) neodymium tweeters 2 x 8.9 cm (3.51 in) mid-range speakers
Rear shelf	**Active subwoofer** with 2 x **13.0 cm** (5.12 in) low-range speakers	Passive subwoofer with 2 x 13.3 cm (5.34 in) low-range speakers
Audio electronics	**7-channel** MOST® digital system with: 5 x 25 W external linear amplifier 2 x 100 W external TSM switching amplifiers	6-channel MOST® digital system with: 5 x 25 W external linear amplifier 1 x 100 W external TSM switching amplifier
Noise compensation	AudioPilot™ incl. dynamic loudness function with **markedly improved control system**	AudioPilot™ incl. dynamic loudness function
Surround Sound	**BOSE® Centerpoint® and SurroundStage® signal processing**	–

Fig. 51: Bose Surround Sound System

10.2 BOSE® Surround Sound system

Similarly to the 911 Turbo (996), the new 911 Turbo also comes with a high-quality audio system from BOSE® as standard. The BOSE® Sound system used in the 911 Turbo (996) has been fully revamped, however, and upgraded to the BOSE® Surround Sound system. The scope of equipment and features correspond to the system which is optionally available in the current 911 generation.

10.3 Navigation module

Similarly to the 911 Turbo (996), the new 911 Turbo also comes with a navigation system as standard. The navigation module for the PCM system has been thoroughly revised on the basis of the 911 Turbo (996), and corresponds to the current 911 Carrera generation. A new development is the switch from CD to DVD navigation and the relocation of the DVD drive to the luggage compartment. The advantages of DVD navigation are the large volume of data which can be stored and the markedly faster access to data via the DVD drive. The larger data capacity means that the system is now able to provide navigation within an entire continent (e.g. western Europe or USA/Canada) without changing the DVD. The faster data access means that the navigation routes can be determined at greater speed and the map display can be updated more quickly.

10.4 Extended navigation system (option)

As on the current 911 generation, the extended navigation module is also available as an option (I-no. 672) for the new 911 Turbo. The extended scope of functions essentially comprises automatic route recording incl. the possibility of subsequently navigating along the recorded route (backtrace navigation), navigation along a defined waypoint list (waypoint navigation) and navigation in non-digitised areas by means of a compass and GPS.

10.5 Electronic logbook (option)

As for the new 911 generation, the electronic logbook option is also available for the new 911 Turbo (I-no. 641). This system permits automatic logging of mileage, distance covered, date and time as well as the start and destination addresses for every trip. These data can be transferred via an infrared interface from the PCM system to a PC, evaluated and used as a logbook record. The scope of delivery includes the appropriate PC software for managing the recorded data.

10.6 Telephone module (option)

In keeping with the new 911 generation, a new telephone module (I-no. 666) with triband telephone (for GSM 900, 1800 and 1900 networks) is also optionally available for the new 911 Turbo. This means that it is now possible to offer this option for the USA, Canada, Mexico, Latin America and India, too. The hands-free microphone has been relocated from its position in the instrument dials on the 911 Turbo (996) to the steering column. This improves the directional characteristic for the driver, thus enhancing speech quality.

11 Safety

The new 911 Turbo incorporates all the safety-related features of the current 911 generation. For detailed information, please refer to the corresponding Product Information.

11.1 Anti-theft protection

The following familiar functions afford maximum protection from theft on the 911 Turbo, too:

- Central locking with remote control
- Immobilizer with transponder system
- Anti-theft alarm system with contact-controlled outer-skin monitoring
- Interior surveillance via radar sensors
- Security wheel bolts

11.2 Active safety

The new 911 Turbo offers a very high standard of active safety thanks to its high acceleration and deceleration values, the controlled all-wheel-drive PTM, the PASM chassis and the optimized PSM vehicle stabilization system.

The further improvement in torque and power values in comparison to the 911 Turbo (996) and the markedly improved response of the turbochargers as a result of variable turbine geometry (VTG) provide the new 911 Turbo with even greater reserves of acceleration power and torque. In combination with the further enhanced brake system incl. improved braking readiness (through prefilling of the brake system) and brake assist, this ensures even greater agility for overtaking and filtering into streams of traffic.

The controlled all-wheel-drive PTM also makes a major contribution to active safety. Apart from offering advantages on uneven or loose surfaces such as sand, gravel, snow and ice, the all-wheel drive also provides for enhanced safety in bends and when driving straight ahead, thanks to its stabilizing characteristics. The wide track further improves driving safety by providing greater support to counter rolling, e.g. when quickly changing lanes.

A further active safety element is the PASM chassis which comes as standard. This chassis offers substantial advantages with regard to driving stability via the automatic activation of different damper characteristics according to driving style and road conditions. In Normal mode at high speeds, for example, the dampers are switched to a harder setting. This reduces the tendency of the body to tilt when changing lanes or performing evasive manoeuvres and considerably improves the driver's control over the vehicle.

The central element of active safety is the PSM system, however, which is supplied as standard equipment. As on the 911 Turbo (996), it also offers a very high level of safety in all driving situations on the new 911 Turbo, within the bounds of what is physically possible. Similarly to the current 911 Carrera 4 models, the new 911 Turbo also features an optimized PSM system. The additional functions improved braking readiness (through prefilling of the brake system) and brake assist reduce the stopping distance, thus making a further contribution towards enhanced active safety.

Fig. 52: 911 Turbo

11.3 Passive safety

The robust bodyshell and body structure including side impact protection and the comprehensive airbag system provide the new 911 Turbo with the same high standard of safety as the current 911 generation.

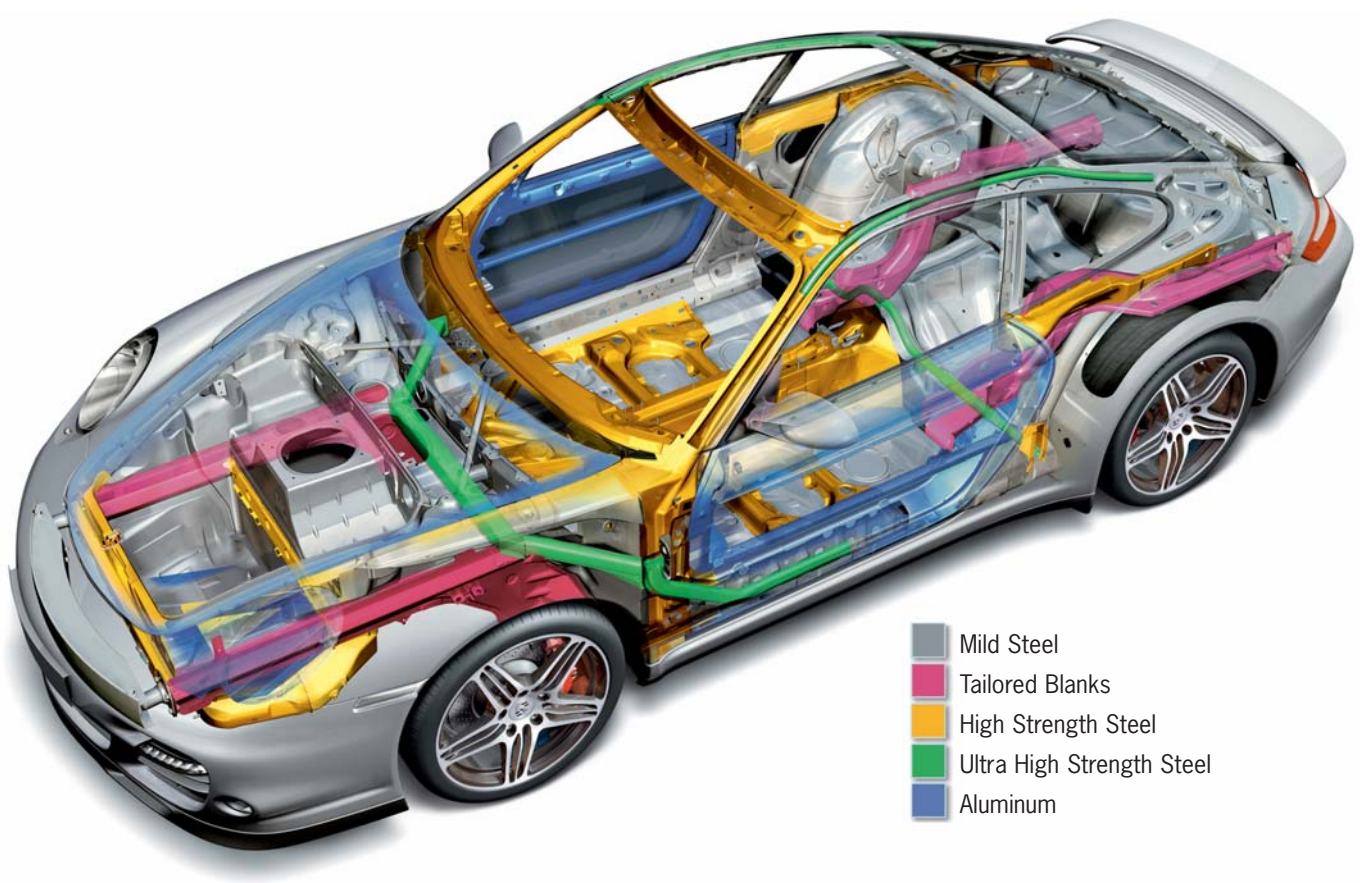


Fig. 53: 911 Turbo

Advanced Airbags
(passenger seat occupancy detection)

In order to ensure compliance with the FMVSS 208 safety requirement which became statutory in the USA from September 1st 2005, all 911, Boxster and Cayenne vehicles for the USA, Canada and Mexico are to be equipped from model year 2006 with a seat occupancy detection system based on weight sensing on the passenger side. Accordingly, the new 911 Turbo also features seat occupancy detection (Advanced Airbag) as standard in these countries.

Weight detection is effected by means of 4 sensors (induction coils). These are located between the seat and the seat rail. The determined weight information is transmitted to the airbag control unit for further processing.

Fig. 54: Seat rail with weight detectors

12 Equipment

12.1 Standard equipment

The following overview presents the standard equipment of the new 911 Turbo.

Engine:
6-cylinder horizontally-opposed biturbo engine, 3.6 l displacement, maximum output 353 kW (480 bhp)
Engine technology: - Aluminum engine block and cylinder head - Water cooling - 4-valve technology - 2 turbochargers with variable turbine geometry (VTG), 2 intercoolers - Continuous inlet camshaft control and valve lift adjustment (VarioCam Plus) - Hydraulic valve clearance compensation - Dry sump lubrication with external engine oil tank - Electronic engine management (Motronic ME7.8) - Electronic gas pedal - Hot film air flow sensor - Sequential fuel injection (multipoint) - Cylinder-selective knock control - Two 3-way catalytic converters - Stereo Lambda control - Individual ignition coils, static high-voltage ignition system - On-Board diagnosis system for monitoring emission control system
Transmission:
Six-speed manual transmission with dual-mass flywheel
All-wheel drive with map-controlled multiple-disc clutch PTM (Porsche Traction Management), incl. ABD and ASR
Chassis:
8.5 J x 19 Turbo light alloy wheels with 235/35 ZR 19 tires, front, 11 J x 19 Turbo light alloy wheels with 305/30 ZR 19, rear
Forged wheels, two-tone look
Anti-theft wheel bolts
Tire Pressure Monitoring system (TPM)
Tire sealing compound and electrical compressor (tire repair kit)
Power-assisted steering with variable steering ratio
McPherson spring strut axle, front anti-roll bar
LSA multi-link rear axle, rear anti-roll bar
Optimized ride stabilization system PSM (Porsche Stability Management), incl. ABS and MSR
Porsche Active Suspension Management (PASM)
Brake system:
6-piston monobloc fixed-caliper brakes, front, 4-piston monobloc fixed-caliper brakes, rear
Brake discs internally vented and perforated
Reinforced brake system with brake disc diameter 350 mm (13.78 in) front and rear
ABS 8.0 (integrated in PSM)
Brake lining wear indicator on each brake pad
Brake calipers coated red

Body:
2+2-seat Coupé with wider body
Sheet steel hot-dip galvanized on both sides
Front apron with air inlets, front lights, turn signals and fog lights
Rear side section with air inlet for intercooling
Rear end with air outlets for intercooling and raised integrated tailpipes
Underbody lining
Rear lid with spoiler and additional automatically extending wing element, chrome “turbo” logo
Aluminum luggage compartment lid
Aluminum doors
Curved door handles
Door stops with 3 index positions
Side windows at front with hydrophobic coating
Metallic color
Electrics:
Power windows with one-touch open/close function and door-seal protection function
Windshield wiper system with 2 wiping speeds, adjustable intermittent wipe and heated washer jets
Electrically adjustable heated exterior mirrors (double-arm), aspherical on driver’s side
Automatically dimming interior/driver’s door mirrors with rain sensor
Heated rear window
Electric slide/tilt sunroof
Porsche Communication Management (PCM): Information system, comprising 5.8" color screen, 12-button keypad, double-tuner radio with antenna diversity, integrated CD audio disc drive with MP3 playback function, on-board computer with extended functions and parallel display of basic information on the instrument cluster
GPS navigation module for PCM with separate DVD drive in luggage compartment
BOSE® Surround sound system with 13 loudspeakers including subwoofer and 325 Watt total output
Uniform lighting concept in White for the entire interior, continuously variable dimming
Orientation lighting in the interior
Footwell lighting
Remote central locking including luggage compartment
Power luggage compartment and engine lid release
Tire pressure monitoring system (TPMS)
Cruise control
HomeLink® (garage door opener)
Rain sensor
Lighting system:
Bi-Xenon headlights, including dynamic headlamp leveling system and headlight cleaning system
Separate auxiliary light in front end with LED turn signal and projector-type fog lights
Rear fog light on driver’s side
Raised third brake light in LED technology
Coming home lights

Instruments:
5 dial-type instrument integrated in dashboard
Instrument dials with central rev counter and multi-function dot matrix display
Analogue gauges for engine speed, vehicle speed and oil pressure, oil temperature, coolant temperature and fuel level
Permanent digital display of total mileage, trip mileage, time, outside temperature and speed
On-board computer with boost pressure indicator
Passive safety:
Full-size airbags for driver and front passenger
Porsche Side Impact Protection System (POSIP), comprising side impact protection in the doors, thorax airbags integrated in the side sections of the front seats and head airbags for driver and front passenger integrated in the door panels
Front passenger seat occupancy detection (Advanced Airbag)
Three-point automatic seat belts, front and rear, with buckle on seat
Belt height adjustment, seat belt pre-tensioners and force limiters in the front
Preparation for subsequent installation of the child seat anchoring system ISOFIX on the front passenger seat and deactivation option for front passenger airbag
Immobilizer, safe locking system, alarm system and interior radar surveillance system
Deformation zones at front and rear with integrated light alloy bumpers
Air conditioning:
Automatic air conditioner with integrated active charcoal filter
Green tinted heat-insulating glass
Windshield with grey toptint
Interior equipment:
Fully electric seats including lumbar support (driver and passenger side) with memory function on driver side (door mirror, seat functions, lumbar support) including remote controlled memory activation
Extended head restraints integrated in front seats
Leather features including seats in standard colors
Split-folding rear seats
Additional storage space behind rear seats
3-spoke sports steering wheel with manual reach and height adjustment, steering wheel rim and airbag module with smooth leather finish in interior color
Turbo gear lever with unique design
Plastic components finished in soft-touch paint in interior color
Various parts painted in Volcano Grey
Interior parts painted in Aluminum Look (air vents, decorative dashboard trim, decorative shift/selector lever trim)
Roofliner in Alcantara
Lockable, large glove box
Door storage bins
Rear center console with 3 storage compartments, incl. rear one locked by central locking
Cup holders located above the glove box (integrated behind the dashboard trim)
Illuminated vanity mirrors in both sun visors (driver and front passenger side)
Door entry guards and rev counter with “turbo” logo
Colors:
Solid colors - exterior: Black, Guards Red, Carrara White, Speed Yellow
Metallic colors - exterior: Basalt Black Metallic, Atlas Gray Metallic, Arctic Silver Metallic, Meteor Gray Metallic (earliest availability from 08/2006), Midnight Blue Metallic, Cobalt Blue Metallic, Carmona Red Metallic, Forest Green Metallic
Interior standard colors: Black, Stone Grey, Sand Beige, Palm Green, Sea Blue

12.2 Optional equipment

O = optional W = without extra charge		Product range	**Availability** (at SOP = 01/2006)
Exterior			
Code	**Special color** Special colors represent a selection of previously developed colors, some of which were in use in the past. Color range: Lapis Blue Metallic, Dark Olive Metallic, GT Silver Metallic, Dark Teal Metallic, Slate Grey Metallic Minimum lead time: 2 months	O	at SOP
Code	**Color to sample** Custom colors mixed to any color sample. Minimum lead time: 6 months	O	at SOP
498	**Deletion of model designation**	W	at SOP
635	**ParkAssist (rear)** Parking aid with four distance sensors integrated discreetly at rear of car	O	at SOP
425	**Rear window wiper** With intermittent wipe	W	at SOP
XAJ	**Side skirts painted** Standard sill trims painted in exterior color (left/right)	O	at SOP
549	**Roof transport system** 75 kg load, suitable for Porsche transport attachments	O	at SOP
Engine, transmission and chassis			
249	**Tiptronic S** 5-speed automatic transmission with gearshift controls on steering wheel	O	at SOP
450	**Porsche Ceramic Composite Brake (PCCB)** Ceramic brake system, carbon fiber-reinforced ceramic brake discs, internally vented and cross-drilled, brake disc diameter 380 mm (14.96 in) front and 350 mm (13.78 in) rear, 6-piston brake calipers on front axle and 4-piston brake calipers on rear axle, yellow paint finish on calipers	O	at SOP
640	**Sport Chrono Package Turbo** Comprising analogue and digital stopwatch, Sport button in the center console incl. activation of timed Turbo Overboost function with torque increased by approx. 60 Nm (45 lb.-ft.) to max. 680 Nm (505 lb.-ft.), performance display in PCM and individual memory for light, wiper, air conditioning and door lock settings	O	at SOP
XCZ	**Sport shifter** Reduction of shift throw. Improved guidance in the shift gate. Note: Only in conjunction with manual transmission. Significantly increased cold shifting forces	O	at SOP
220	**Mechanical rear differential lock** Viscous coupling in traction (22%) and overrun (27%)	O	at SOP
XD9	**Painted wheels**	O	**04/2006**
X54	**Stainless steel tailpipes, chrome-plated** 2 x single-tube tailpipes in standard design made from high-gloss chrome-plated stainless steel	O	**05/2006**

O = optional W = without extra charge			Product range	**Availability** (at SOP = 01/2006)
Interior				
	Instrument dials			**07/2006**
XFD	In interior color:	Sand Beige	O	
XFH	In exterior color:	Speed Yellow	O	
XFJ		Carrara White	O	
P77	**Sports seats** Driver's and passenger's seats in leather with manual fore/aft and height adjustment as well as backrest adjustment		W	at SOP
P01	**Adaptive sports seats** As for sports seats, but with electric adjustment of all seat functions with lumbar support on the driver's and passenger's side, plus 4-way side piece adjustment, incl. memory function for both door mirrors and for seat and lumbar support setting on driver's side		O	at SOP
XSA	**Sports seat backrests painted** With matching paint finish in exterior color: Bucket sports seat backrest, seat controls trim, mounting components trim Note: Available only in standard and special colors		O	**04/2006**
342	**Seat heating** Two-stage heating system for both seats		O	at SOP
	Seat belts			at SOP
XSH		Silver Grey	O	
XSX		Guards Red	O	
XSY		Speed Yellow	O	
XME	**Rear center console painted** With matching paint finish in exterior color: Rear of center console including ashtray cover, rear center console storage bin. Smooth leather finish in interior color: Handbrake lever handhold trim		O	at SOP
509	**Fire extinguisher** Compact DIN EN3 powder fire extinguisher containing 1 kg (2.2 lbs) extinguishing agent, stored at the front, under the driver's seat		O	at SOP
XXZ	**Sports Look footrest** Attachment for footrest fitted as standard in the driver's footwell, designed to match the standard pedals, made of durable material with a stainless-steel frame (brushed matt)		O	at SOP
810	**Floor mats** In interior color with Nubuck leather edging and embroidered Porsche logo at front		O	**06/2006**

O = optional W = without extra charge		Product range	**Availability** (at SOP = 01/2006)
Interior leather			
Code	**Leather interior in special color** Special colors: Terracotta, Cocoa. Same features as leather interior in standard colors. Exceptions: sun visors and foot pad with black foil; black Alcantara rooflining	O	at SOP
970	**Two-tone leather interior** Combination of the colors Black/Stone Grey, Black/Sand Beige or Black/Terracotta. Same features as leather interior in standard colors. For Black/Stone Grey and Black/ Sand Beige two-tone interior, plastic parts finished in soft-touch paint in interior color or black, black film finish on sun visors, film finish in interior color on door-entry guards. For black/terracotta two-tone interior, plastic parts finished in soft-touch paint in interior color or black, black film finish on sun visors and door-entry guards.	O	at SOP
998	**Leather interior in natural leather** Natural Brown (order-no. code 06), Natural Dark Grey (order-no. code 05). Protectively through-dyed leather that maintains the natural characteristics. Same features as leather interior. Steering wheel in interior color with leather-trimmed rim in interior color. Gear and selector lever in leather as well as handbrake lever handle in leather in interior color. Sun visors and door-entry guards with black film finish. With brown natural leather, plastic parts finished in soft-touch paint in interior color; with dark grey natural leather, plastic parts finished in soft-touch black paint.	O	at SOP
Code	**Leather interior in color to sample** Custom color. Leather scope same as standard colors. Exceptions: Plastic parts finished in soft-look black paint; 3-spoke steering wheel with leather-covered rim in black, shift or selector lever and handbrake lever grip in black leather, otherwise as for special colors	O	at SOP
EAA	**Additional interior package dashboard leather** Smooth leather finish in interior color: Side vents, side vent vanes, center vent including switch trim, center vent vanes, loudspeaker cover in dashboard (center), defroster trim, decorative dashboard trim including cup holder cover	O	at SOP
XTV	**Additional interior package door trim leather** Leather finish in interior color: Door opener trim	O	at SOP
XNG	**Instrument surround leather** Smooth leather finish in interior color: Instrument cluster frame	O	at SOP
XNS	**Steering column trim leather** Smooth leather finish in interior color: Steering column trim (three-part). Paint finish in interior color: Cover for hands-free microphone	O	at SOP
459	**3-spoke steering wheel smooth leather** Slightly larger steering wheel rim with round contours and triangular airbag module	W	at SOP
XPA	**Padded 3-spoke sports steering wheel smooth leather** Padded steering wheel rim. Also with smooth leather finish in interior color: Steering wheel hub trim. Note: Airbag module with smooth black leather finish in conjunction with leather in color to sample	O	at SOP
431	**3-spoke multi-function steering wheel smooth leather** Slightly larger steering wheel rim with round contours and triangular airbag module	O	at SOP
982	**Soft ruffled leather seats** Center section of front and rear seats in ruffled leather look	O	at SOP

O = optional W = without extra charge		Product range	**Availability** (at SOP = 01/2006)
XSB	**Sports seat backrests leather** Smooth leather finish in interior color: Bucket sports seat backrest. Aluminum Look: Seat controls trim, mounting components trim	O	**04/2006**
XSC	**Porsche Crest on head restraints** Head restraints on front seats embossed	O	at SOP
XEA	**PCM handset leather** Smooth leather finish in interior color: Passive receiver, including bracket (three-part)	O	at SOP
XMZ	**Rear center console leather** Smooth leather finish in interior color: Center console at rear including ashtray cover, rear center console storage bin, handbrake lever handhold trim	O	at SOP
XMA	**Rooflining leather** Smooth leather in interior color	O	at SOP
XMP	**Sun visors leather** Sun visors (right/left) and vanity mirror covers in smooth leather in interior color	O	at SOP
XZD	**Interior light cover leather** Smooth leather finish in interior color: Interior light cover	O	at SOP
XTG	**Door entry guards leather** Smooth leather finish in interior color	O	at SOP
Interior Makassar			
801	**Interior package Makassar** Finished in dark Makassar, (matt satin finish): Decorative dashboard trim with cup holder cover, five-part, shift/selector lever, handbrake lever handle	O	at SOP
EAB	**Additional interior package dashboard Makassar** Finished in dark Makassar, (matt satin finish): Inserts in defroster trim, side vents, center vent. Smooth leather finish in interior color: Side vent vanes, center vent vanes incl. switch trim, loudspeaker dashboard cover (middle), defroster trim (in part)	O	at SOP
451	**3-spoke multi-function steering wheel Makassar** Slightly larger steering wheel rim with round contours, triangular airbag module and wood inserts in dark Makassar (matt satin finish)	O	at SOP
XTT	**Additional interior package door trim Makassar** Finished in dark Makassar, (matt satin finish): Door handle front side, door storage bin cover incl. door storage bin cover extension, door handle trim	O	at SOP
XJT	**Rear center console Makassar** Finished in dark Makassar, (matt satin finish): Rear of center console including ashtray cover, rear center console storage bin. Smooth leather finish in interior color: handbrake lever handhold trim	O	at SOP

O = optional W = without extra charge		Product range	**Availability** (at SOP = 01/2006)
Interior Sycamore			
802	**Interior package Sycamore** Finished in sycamore, light (matt satin finish): Decorative dashboard trim with cup holder cover, five-part, shift/selector lever, handbrake lever handle	O	at SOP
EAC	**Additional interior package dashboard Sycamore** Finished in sycamore, light (matt satin finish): Inserts in defroster trim, side vents, center vent. Smooth leather finish in interior color: Side vent vanes, center vent vanes incl. switch trim, loudspeaker dashboard cover (middle), defroster trim (in part)	O	at SOP
452	**3-spoke multi-function steering wheel Sycamore** Slightly larger steering wheel rim with round contours, triangular airbag module and wood inserts in light Sycamore (matt satin finish)	O	at SOP
XTU	**Additional interior package door trim Sycamore** Finished in sycamore, light (matt satin finish): Door handle front side, door storage bin cover incl. door storage bin cover extension, door handle trim	O	at SOP
XJU	**Rear center console Sycamore** Finished in sycamore, light (matt satin finish): Rear of center console including ashtray cover, rear center console storage bin. Smooth leather finish in interior color: Handbrake lever handhold trim	O	at SOP
Interior carbon			
803	**Interior package carbon** Carbon finish: Decorative dashboard trim with cup holder cover, five-part, shift/selector lever, handbrake lever handle	O	at SOP
EAD	**Additional interior package dashboard carbon** Carbon finish: Inserts in defroster trim, side vents, center vent. Smooth leather finish in interior color: Side vent vanes, center vent vanes incl. switch trim, loudspeaker dashboard cover (middle), defroster trim (in part)	O	at SOP
453	**3-spoke multi-function steering wheel carbon** Slightly larger steering wheel rim with round contours, triangular airbag module and carbon inserts	O	at SOP
XTL	**Additional interior package door trim carbon** Carbon finish: Door handle front side, door storage bin cover incl. door storage bin cover extension, door handle trim	O	at SOP
XMJ	**Rear center console carbon** Carbon finish: Rear of center console including ashtray cover, rear center console storage bin. Smooth leather finish in interior color: Handbrake lever handhold trim	O	at SOP
X69	**Door entry guards in carbon** With “turbo” logo	O	**04/2006**

O = optional W = without extra charge		Product range	**Availability** (at SOP = 01/2006)
Interior Aluminum Look/aluminum/stainless steel			
EAE	**Interior package dashboard Aluminum Look** Aluminum Look: Side vents, center vent incl. switch trim, instrument cluster frame. Smooth leather finish in interior color: Side vent vanes, center vent vanes, loudspeaker dashboard cover (center), defroster trim	O	at SOP
XCL	**Instrument surround Aluminum Look** Aluminum Look: Instrument cluster frame	O	at SOP
XPV	**3-spoke multi-function steering wheel Aluminum Look** Slightly larger steering wheel rim with round contours, triangular airbag module and Aluminum Look inserts. Also with smooth leather finish in interior color: Steering wheel hub trim. Note: Airbag module with smooth black leather finish in conjunction with leather in color to sample	O	at SOP
XTW	**Additional interior package door trim Aluminum Look** Aluminum Look: Door handle front side, door storage bin cover incl. door storage bin cover extension, door handle trim	O	at SOP
ECA	**Gear and handbrake lever Aluminum** In new design. Made of aluminum: Gear lever, handbrake lever handle. Smooth leather finish in interior color: Inserts in gear lever, top of handbrake lever. Aluminum Look: lower part of handbrake lever.	O	**10/2006**
XCK	**Rear center console Aluminum Look** Aluminum Look: Rear center console including ashtray cover, rear center console storage bin. Smooth leather finish in interior color: Handbrake lever handhold trim	O	at SOP
XCG	**Sports seat backrests Aluminum Look** Aluminum Look: Bucket sports seat backrest, seat controls trim, mounting components trim	O	**04/2006**
X70	**Door entry guards in stainless steel** With “turbo” logo	O	04/2006

O = optional W = without extra charge		Product range	**Availability** (at SOP = 01/2006)
Audio and communication			
672	**Extended navigation system** The navigation module has been enhanced to include automatic route recording and subsequent back-trace navigation. It also facilitates navigation in areas that are not digitally recorded, using its compass and GPS system.	O	at SOP
641	**Electronic logbook** Permits the automatic logging of the current mileage, distance covered, date and time as well as the start and destination address for every trip. Includes a PC software package for subsequent data evaluation. The software complies with all the requirements of the German Inland Revenue office for recognition of automatic logbook recording.	O	at SOP
666	**Telephone module for PCM** Triband telephone for GSM 900, 1800 and 1900 networks, for small SIM card, basic functions operated via control stalks on steering column with simultaneous display on instrument cluster, hands-free facility, SMS functions and SOS emergency call button. Note: retrofitting more complex than ex-factory installation	O	at SOP
668	**PCM handset for telephone module**	O	at SOP
692	**CDC-4 six-disc CD autochanger** For 6 compact discs, includes anti-shock memory (no jumping of music tracks) and MOST® connection	O	at SOP
461	**Mast antenna** For improved AM reception	W	at SOP
Factory collection			
900	**Factory collection**	O	at SOP

13 Colors

13.1 Exterior colors

As for the 911 Turbo (996), the customer is also able to choose between 4 solid and 8 metallic colors for the new 911 Turbo. The metallic colors remain available as a no cost option for the 911 Turbo. The range of colors corresponds to that for the complete 911 model line in model year 2007. The range of special colors and colors to sample offers further scope for customisation.

Solid colors, exterior


Black


Guards Red

Carrara White


Speed Yellow

* Available from 08/2006 at the earliest

Metallic colors, exterior


Basalt Black Metallic


Arctic Silver Metallic


Midnight Blue Metallic


Carmona Red Metallic


Atlas Grey Metallic

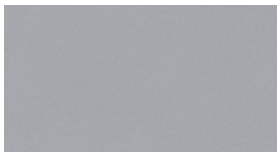

Meteor Grey Metallic*


Cobalt Blue Metallic


Forest Green Metallic

Special colors, exterior


Slate Grey Metallic


GT Silver Metallic


Lapis Blue Metallic


Dark Teal Metallic


Dark Olive Metallic

13.2 Interior colors

Similarly to the 911 Turbo (996), the new 911 Turbo also features a leather interior as standard with a choice of 5 standard colors. 2 special colors, 2 natural leather colors and 3 two-tone combinations are optionally available.

The two-tone option first introduced for the 911 Carrera models in model year 2006 is now also available for the new 911 Turbo. The available color combinations are Black/Terracotta, Black Stone Grey and Black/Sand Beige. The different two-tone interiors are presented in the following overview:

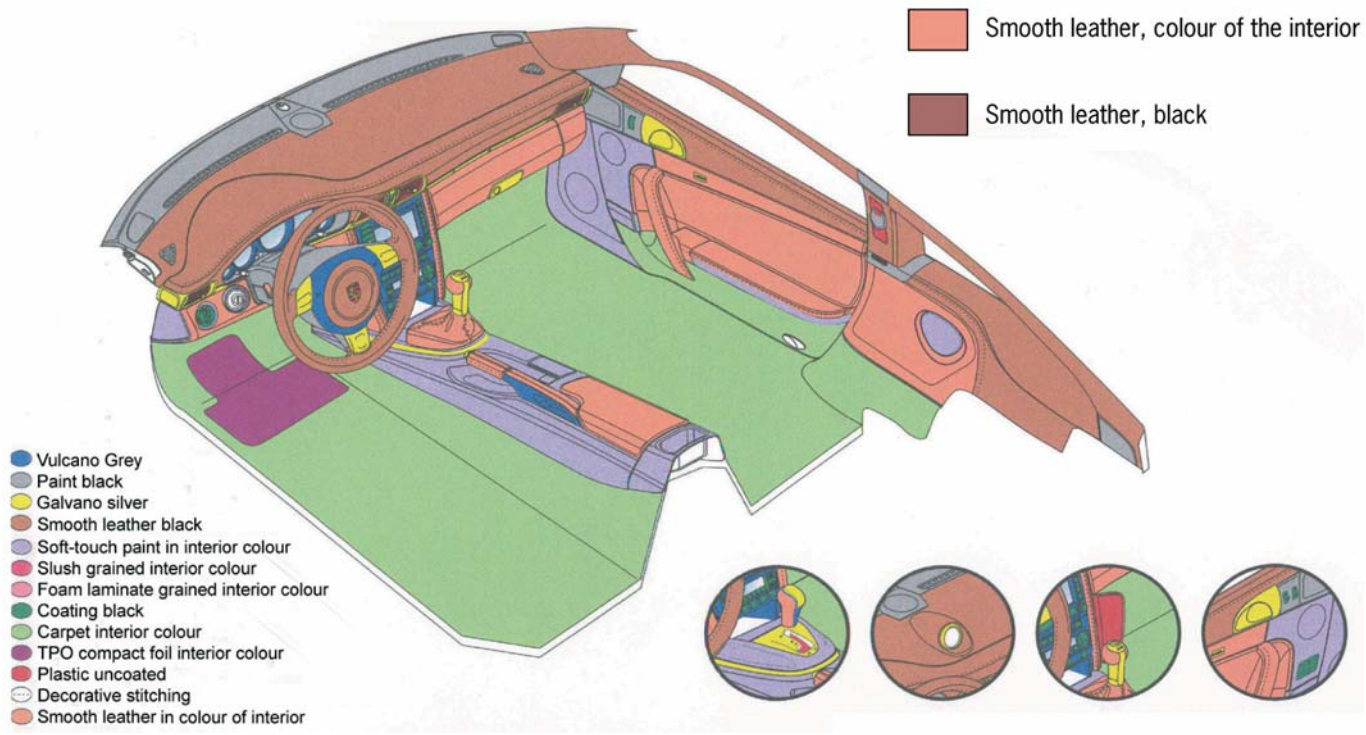


Fig. 55: Overview of two-tone options

Standard colors, interior

Leather/soft-touch paint [1]

Interior color

Black

Stone Grey

Sand Beige

Palm Green

Sea Blue

Special colors, interior

Leather/soft-touch paint [3]

Interior color

Terracotta

Cocoa

Natural leather interior [2]

Leather/soft-touch paint

Interior color

Natural Dark Grey [4]

Natural Brown [3]

Two-tone interior

Leather/soft-touch paint

Interior color

Black and Terracotta [5]

Black and Stone Grey [6]

Black and Sand Beige [6]

[1] Soft touch paint in interior color; film finish on sun visors and door-entry guards

[2] Roofliner in Black Alcantara, carpet in interior color

[3] Soft-touch paint matched to interior color, sun visors and protective strip with film in Black

[4] Soft paint in Black, sun visors and protective strip with film in Black

[5] Soft-touch paint in Black, sun visors and protective strip with film in Black

[6] Soft-touch paint in Black, sun visors and protective strip with film in Black, protective strip with film in interior color

14 Technichal data

Bold entries Changes of the new 911 Turbo (997) compared with the 911 Turbo (996)

( ) Figures in brackets Tiptronic S, unless otherwise stated

No details No details: No figures available at time of going to press

	Unit	New 911 Turbo (997)	911 Turbo (996)	911 Turbo S (996)
				
1. Engine				
Number of cylinders		6	6	6
Valves/cylinder		4	4	4
Displacement (effective)	cc	3,600	3,600	3,600
Bore x stroke	mm in	100 x 76.4 3.94 x 3.01	100 x 76.4 3.94 x 3.01	100 x 76.4 3.94 x 3.01
Max. output	kW / hp	**353 / 480**	309 / 415	331 / 444
At engine speed	rpm	6,000	6,000	5,700
Max. torque	Nm / ft.-lb.	**620 / 460**	560 / 415	620 / 457
At engine speed	rpm	**1,950 - 5,000**	2,700 - 4,600	3,500 - 4,500
Max. torque with overboost	Nm / ft.-lb.	680 / 505	Not available	Not available
At engine speed	rpm	**2,100 - 4,000**		
Compression ratio		**9.0:1**	9.4:1	9.4:1
Volumetric efficiency	kW/l hp/l	**98.1** **133.3**	85.8 115.3	91.9 123.3
Engine cooling (cylinder head)		Cross flow	Cross flow	Cross flow
Engine management		Digital engine electronics ME **7.8.1**	Digital engine electronics ME 7.8	Digital engine electronics ME 7.8
Mixture preparation		Sequential multipoint fuel injection	Sequential multipoint fuel injection	Sequential multipoint fuel injection
Fuel type (RON 95 can be used but will reduce performance)		Premium plus, 98 RON	Premium plus, 98 RON	Premium plus, 98 RON
Ignition system		Ignition with digital mapping, cylinder-specific knock control, static high-voltage ignition system with individual ignition coils	Ignition with digital mapping, cylinder-specific knock control, static high-voltage ignition system with individual ignition coils	Ignition with digital mapping, cylinder-specific knock control, static high-voltage ignition system with individual ignition coils
Valve control		VarioCam Plus	VarioCam Plus	VarioCam Plus
Turbocharging		2 turbochargers **with variable turbine geometry (VTG)**, boost-pressure control	2 turbochargers with integrated bypass flaps, boost-pressure control	2 turbochargers with integrated bypass flaps, boost-pressure control

	Unit	New 911 Turbo (997)	911 Turbo (996)	911 Turbo S (996)
				
Charge-air cooling		2 separate charge-air coolers in the rear quarter panels of the body	2 separate charge-air coolers in the rear quarter panels of the body	2 separate charge-air coolers in the rear quarter panels of the body
Exhaust system		Integrated catalytic converter and rear muffler system	Integrated catalytic converter and rear muffler system	Integrated catalytic converter and rear muffler system
Generator	W	**2,100**	1,680	1,680
Starter	kW	1.7	1.7	1.7
Battery capacity	Ah	**70**	80	80
Idle speed	rpm	740	740	740
Maximum engine speed	rpm	6,750	6,750	6,750
2. Transmission				
All-wheel drive		**Porsche Traction Management (PTM) with controlled multiple-disc clutch incl. ABD and ASR**	Viscous multiple-disc clutch	Viscous multiple-disc clutch
Manual gearbox Transmission ratio	1st gear 2nd gear 3rd gear 4th gear 5th gear 6th gear	3.82 **2.14** **1.48** **1.18** **0.97** **0.79**	3.82 2.05 1.41 1.12 0.92 0.75	3.82 2.05 1.41 1.12 0.92 0.75
Reverse		**2.67**	2.86	2.86
Final drive ratio, rear axle		3.44	3.44	3.44
Final drive ratio, front axle		**3.33**	3.44	3.44
Clutch diameter	mm / in	240 / 9.45	240 / 9.45	240 / 9.45
Tiptronic S Transmission ratio	1st gear 2nd gear 3rd gear 4th gear 5th gear	3.59 2.19 1.41 1.00 0.83	3.59 2.19 1.41 1.00 0.83	3.59 2.19 1.41 1.00 0.83
Reverse gears		3.17 / 1.93	3.17 / 1.93	3.17 / 1.93
3. Chassis				
Front axle		Analagous to the 911 Turbo (996), enhanced by **PASM with Normal and Sport mode**: additionally electrically actuated hydraulic bypass valve for continuous adjustment of damping force	Spring strut axle, wheels suspended individually on wishbones with trailing links and suspension struts (McPherson design, optimized by Porsche), one conical spring per wheel with internal double-acting hydraulic twin-tube gas-filled damper	Spring strut axle, wheels suspended individually on wishbones with trailing links and suspension struts (McPherson design, optimized by Porsche), one conical spring per wheel with internal double-acting hydraulic twin-tube gas-filled damper

	Unit	New 911 Turbo (997)	911 Turbo (996)	911 Turbo S (996)
				
Toe-in	min	+5 ±5	+5 ±5	+5 ±5
Camber RoW USA	min	**-40 ±15** **-40 ±15**	-30 ±15 0 ±15	-30 ±15 0 ±15
Rear axle		Analagous to the 911 Turbo (996), enhanced by **PASM with Normal and Sport mode**: additionally electrically actuated hydraulic bypass valve for continuous adjustment of damping force	Multi-link LSA system, wheels supported individually on 5 control arms, one cylindrical coil spring per wheel with coaxial internal double-acting hydraulic single-tube gas-filled shock absorber	Multi-link LSA system, wheels supported individually on 5 control arms, one cylindrical coil spring per wheel with coaxial internal double-acting hydraulic single-tube gas-filled shock absorber
Toe-in	min	+10 ±5	+10 ±5	+10 ±5
Camber	degree/min	**-1°40' ±15'**	-1°25' ±15'	-1°25' ±15'
Steering Steering ratio		**17.1:1 ... 13.8:1**	16.9:1	16.9:1
Steering wheel revolutions from lock to lock		**2.62**	2.98	2.98
Steering wheel diameter	mm / in	**370 / 14.57**	375 / 14.76	375 / 14.76
Brakes		Hydro-mechanical transmission, **tandem brake booster (9-inch)**, 2-circuit brake system, **6-piston** aluminum monobloc calipers on front axle and 4-piston aluminum monobloc calipers on rear axle, per axle distribution	Hydro-mechanical transmission, single brake booster (10-inch), 2-circuit brake system, 4-piston aluminum monobloc calipers on front and rear axle, per axle distribution	Hydro-mechanical transmission, single brake booster (10-inch), 2-circuit brake system, 6-piston aluminum monobloc calipers on front axle and 4-piston aluminum monobloc calipers on rear axle, per axle distribution
ABS		Bosch **ABS 8.0** (integrated in PSM)	Bosch ABS 5.7 (integrated in PSM)	Bosch ABS 5.7 (integrated in PSM)
Vehicle stability system		**PSM 8.0** incl. ABS and MSR	PSM 5.7 incl. ABS, ABD, ASR, MSR	PSM 5.7 incl. ABS, ABD, ASR, MSR
Steel brake system				
F Design		Internally vented and cross-drilled	Internally vented and cross-drilled	Not available
Diameter	mm / in	**350 / 13.78**	330 / 12.99	
Thickness	mm / in	34 / 1.34	34 / 1.34	
R Design		Internally vented and cross-drilled	Internally vented and cross-drilled	
Diameter	mm / in	**350 / 13.78**	330 / 12.99	
Thickness	mm / in	28 / 1.10	28 / 1.10	

	Unit	New 911 Turbo (997)	911 Turbo (996)	911 Turbo S (996)
				
Ceramic brake system (PCCB)		Optional extras: Carbon fiber-reinforced ceramic brake discs, internally vented and cross-drilled, 6-piston brake calipers on front axle and 4-piston brake calipers on rear axle, brake disc diameter **380 mm (14.96 in) front** and 350 mm (13.78 in) rear	Optional extras: Carbon fiber-reinforced ceramic brake discs, internally vented and cross-drilled, 6-piston brake calipers on front axle and 4-piston brake calipers on rear axle, brake disc diameter 350 mm (13.78 in) front and rear	Standard: Carbon fiber-reinforced ceramic brake discs, internally vented and cross-drilled, 6-piston brake calipers on front axle and 4-piston brake calipers on rear axle, brake disc diameter 350 mm (13.78 in) front and rear
4. Wheels and tires				
Wheel design		**Forged aluminum, two-tone look**	Aluminum-cast, hollow-spoke technology	Aluminum-cast, hollow-spoke technology
Standard — Wheels	front rear	**8.5 J x 19, RO 56** 11 J x **19, RO 51**	8 J x 18, RO 50 11 J x 18, RO 45	8 J x 18, RO 50 11 J x 18, RO 45
Standard — Tires	front rear	**235/35 ZR19** **305**/30 **ZR19**	225/40 ZR18 295/30 ZR18	225/40 ZR18 295/30 ZR18
Winter wheels 18" (new 911 Turbo: not in conjunction with PCCB) — Wheels	front rear	8 J x 18, **RO 57** **11 J** x 18, **RO 51**	8 J x 18, RO 50 10 J x 18, RO 47	8 J x 18, RO 50 10 J x 18, RO 47
Winter wheels 18" (new 911 Turbo: not in conjunction with PCCB) — Tires	front rear	**235**/40 R18 **295**/35 R18	225/40 R18 88H M+S 265/35 R18 97H M+S	225/40 R18 88H M+S 265/35 R18 97H M+S
Winter wheels 19" — Wheels	front rear	**8.5 J x 19, RO 56** **11 J x 19, RO 51**	Not available	Not available
Winter wheels 19" — Tires	front rear	**235/35 R19** **295/30 R19**		
Air pressure, 18" - summer — front — partially loaded fully loaded	bar/psi	- -	2.5 / 36.26 2.5 / 36.26	2.5 / 36.26 2.5 / 36.26
Air pressure, 18" - summer — rear — partially loaded fully loaded	bar/psi	- -	3.0 / 43.51 3.0 / 43.51	3.0 / 43.51 3.0 / 43.51
Air pressure, 19" - summer — front — partially loaded fully loaded	bar/psi	**2.3/ 33.36** 2.5 / 36.26	Not available	Not available
Air pressure, 19" - summer — rear — partially loaded fully loaded	bar/psi	**2.7/ 39.16** 3.0/ 43.51		
5. Weights				
Curb weight	kg lbs	**1,585 (1,620)** **3,494 (3,571)**	1,590 (1,630) 3,505 (3,594)	1,590 (1,630) 3,505 (3,594)
Max. gross weight	kg lbs	**1,950 (1,980)** **4,299 (4,365)**	1,935 (1,975) 4,266 (4,354)	1,935 (1,975) 4,266 (4,354)
Max. payload	kg lbs	**365 (360)** **805 (794)**	345 (345) 761 (761)	345 (345) 761 (761)
Max. permissible roof load with original Porsche roof transport system	kg lbs	75 165	75 165	75 165

	Unit	New 911 Turbo (997)	911 Turbo (996)	911 Turbo S (996)
				
Permissible axle load - front/rear	kg lbs	825 / 1,250 1,819 / 2,756	825 / 1,250 1,819 / 2,756	825 / 1,250 1,819 / 2,756
Weight distribution - front/rear Manual gearbox Tiptronic S	 % %	 39/61 **39/61**	 39/61 38/62	 39/61 38/62
6. Performance				
Top track speed	km/h mph	**310 (310)** **192.6 (192.6)**	305 (298) 189.5 (185.2)	307 (300) 190.8 (186.4)
Acceleration 0-100 km/h	s	**3.9 (3.7)**	4.2 (4.8)	4.2 (4.5)
Acceleration 0-60 mph	s	**3.7 (3.4)**	n/a	n/a
Acceleration 0-100 mph	s	**8.4 (7.8)**	9.3 (10.4)	9.0 (9.7)
Acceleration, 0-1,000 m	s	**21.5 (21.1)**	22.5 (23.3)	21.8 (22.7)
Acceleration, $^1/_4$ mile	s	**11.8 (11.6)**	12.5 (13.2)	12.3 (12.8)
Flexibility (80-120 km/h / 62-124 mph) in penultimate gear	s	**3.8 (3.5)**	4.8 (5.5)	4.9 (5.6)
7. Fuel consumption/exhaust emissions				
CO_2 emissions Overall	g/km	**307 (326)**	309 (339)	324 (345)
US fuel consumption combined	mpg	n/a	20.4 (19.9)	20.4 (19.9)
8. Exterior dimensions				
Length RoW USA	mm / in	**4,450 / 175.20** **4,477 / 176.26**	4,435 / 174.61 4,463 / 175.71	4,435 / 174.61 4,435 / 175.71
Width without door mirrors with door mirrors	mm / in	**1,852 / 72.91** 1,937 / 76.26	1,830 / 72.05 1,937 / 76.26	1,830 / 72.05 1,937 / 76.26
Height Standard chassis PASM	mm / in	- **1,300 / 51.18**	1,295 / 50.98 -	1,295 / 50.98 -
Wheelbase	mm / in	2,350 / 92.52	2,350 / 92.52	2,350 / 92.52
Track, front 18" 19"		- **1,490 / 58.66**	1,472 / 57.95 -	1,472 / 57.95 -
Track, rear 18" 19"		- **1,548 / 60.94**	1,528 / 60.16 -	1,528 / 60.16 -
Drag coefficient	c_d	0.31	0.31	0.31
Frontal area A	m^2	**2.04**	2.00	2.00
Drag	c_d x m^2	**0.63**	0.62	0.62
Turning circle	m / ft	**10.9 / 35.76**	10.6 / 34.78	10.6 / 34.78
Approach angle with & without spoiler lip RoW with & without spoiler lip USA	 degrees	 7.9/10.4 **7.9/10.4**	 7.9/10.2 9.7/12	 7.9/10.2 9.7/12
Departure angle RoW USA	degrees	**12.7** **12.7**	13.0 13.5	13.0 13.5
Ramp angle RoW USA	degrees	**12.8** **12.8**	12.5 14.0	12.5 14.0

	Unit	New 911 Turbo (997)	911 Turbo (996)	911 Turbo S (996)
				
Ground clearance* RoW USA *Lower body measurement point for determining ground clearance	mm / in	**110/4.33** 110/4.33 **New** brake air deflector to front control arm	90 / 3.54 110 / 4.33 Brake air deflector on 911 Turbo (996) to front control arm	90 / 3.54 110 / 4.33 Brake air deflector on 911 Turbo (996) to front control arm
9. Interior dimensions				
Interior length [1] Driver's side Passenger's side	mm / in	**1,692 (66.7)** 1,570 (61.8)	1,680 (66.2) 1,570 (61.8)	1,680 (66.2) 1,570 (61.8)
Shoulder room, front	mm / in	**1,308 (51.5)**	1,313 (51.7)	1,313 (51.7)
Elbow room, front	mm / in	**1,355 (53.4)**	1,356 (53.4)	1,356 (53.4)
Effective headroom, front	mm / in	**974 / 38.4** **(without sunroof)** 966 / 38.1 (with sunroof)	975 / 38.4 (without sunroof) 966 / 38.1 (with sunroof)	975 / 38.4 (without sunroof) 966 / 38.1 (with sunroof)
Luggage compartment volume USA - front	l / US gal	**95 / 25.1**	100 / 26.5	100 / 26.5
- rear with rear seat backrests folded down	l / US gal	**190 / 50**	200 / 53	200 / 53
Tank capacity / reserve	l US gal	**67 / 12** **17.7/ 3.17**	63 / 12 16.6 / 3.2	63 / 12 16.6 / 3.2

[1] Driver's side: From pressed clutch pedal to hip point of rear seat
Passenger's side: From heel point in front of firewall to hip point of rear seat

15 Core competition

15.1 External comparison

This comparison is based on the EU model. All values in parenthesis refer to automatic transmissions unless otherwise specified. The exclusive features of the new 911 Turbo are shown in **bold**.

Criterion	**Porsche new 911 Turbo (997)**	**Ferrari F430**	**Lamborghini Gallardo**	**BMW M6**	**Mercedes-Benz SL 55 AMG**	**Mercedes-Benz SL 600**	**Aston Martin DB9**
							
1. Concept							
Body form	Coupé	Coupé	Coupé	Coupé	Roadster	Roadster	Coupé
Engine position/drive	Rear/All-wheel drive	Mid engine/rear	Mid engine/All-wheel drive	Front/rear	Front/rear	Front/rear	Front-Mid engine/rear
Seats/doors	2+2/2	2/2	2/2	2+2/2	2/2	2/2	2+2/2
2. Engine							
Type/valves	**Horizontally opposed Otto** engine, 24 valves, two overhead camshafts per cylinder bank Continuous intake camshaft adjustment with VarioCam Plus valve lift control, resonance intake system. Aluminum cylinder head and engine block	Otto V-engine. Cylinder angle 90°, 32 valves, two overhead camshafts per cylinder bank Continuous intake and exhaust camshaft adjustment, twin-branch adjustable resonance intake system Engine block made of aluminum alloy and age-hardened silicon, with wet pressed in cylinder liners with Nikasil coating, Aluminum cylinder head	Otto V-engine, longitudinally mounted, two overhead camshafts, cylinder angles 90°, 40 valves Chain drive, continuously adjustable intake and exhaust camshaft Aluminum cylinder head and engine block	Otto V-engine, cylinder angles 90°, 40 valves, longitudinally mounted, two overhead camshafts Variable valve control through M double Vanos Engine block in bedplate construction made of aluminum-silicon alloy with cast iron inlays Aluminum cylinder head and pistons. Forged crankshaft and steel connecting rods	Otto V-engine, cylinder angle 90°, 24 valves, two overhead camshafts per cylinder bank Aluminum cylinder head and engine block	Otto V-engine, cylinder angle 60°, 36 valves, two overhead camshafts per cylinder bank Aluminum engine block, die-cast magnesium cylinder heads	Otto V-engine, cylinder angle 60°, 48 valves, two overhead camshafts per cylinder bank Aluminum cylinder head and engine block
Turbocharging	2 turbochargers with **variable turbine geometry (VTG)**	--	–	–	1 compressor	2 turbochargers	–
Cylinders/displacement	**B6**/3,600	V8/4,308	V10/4,961	V10/4,999	V8/5,439	V12/5,513	V12/5,935
Bore x stroke mm	100 x 76.4	92 x 81	82.5 x 92.8	92 x 75.2	97 x 92	82 x 87	89 x 79.5
Engine power output in kW/bhp at stated revs	353/480 @ 6,000	360/490 @ 8,500	368/500 @7,800	373/507 @ 7,750	380/517 @ 6,100	380/517 @ 5,000	336/457 @ 5,750
Max. torque in Nm at stated rpm	620 @ 1,950 - 5,000	465 @ 5,250	510 @ 4,500	520 @ 6,100	720 @ 2,600 - 4,000	830 @ 1,900 - 3,500	570 @ 5,000

Criterion	Porsche new 911 Turbo (997)	Ferrari F430	Lamborghini Gallardo	BMW M6	Mercedes-Benz SL 55 AMG	Mercedes-Benz SL 600	Aston Martin DB9
Max. torque with overboost in Nm at stated rpm	**680 (with Overboost) @ 2,100 - 4,000**	Not available	Not available	Not available	Not available	Not available	Not available
Max. engine speed in rpm	6,750	8,500	7,950	8,250	6,500	5,950	6,900
Compression	9.0:1	11.3:1	11.0:1	12.0:1	9.0:1	9.0:1	10.3:1
Fuel grade	Premium plus, 98 RON	Premium 95 RON	Premium 95 RON	Premium 98 RON	Premium 95 RON	Premium plus, 98 RON	Premium 95 RON
Specific output in kW/l (bhp/l)	98.1 (133.3)	83.6 (113.7)	74.2 (100.8)	74.6 (101.4)	69.9 (95.1)	68.9 (93.8)	55.8 (75.8)
Specific torque in Nm/l	172.2 (with Overboost 188.9)	107.9	102.8	104.0	132.4	150.6	96.0
Power-to-weight ratio in acc. with DIN (kg/bhp)	4.5 (3.3)	4.0 (3.0)	4.0 (3.0)	4.6 (3.4)	5.0 (3.6)	5.2 (3.8)	5.1 (3.8)
Ignition	Ignition with digital mapping, cylinder-specific knock control, static high-voltage ignition system with individual ignition coils ME7.8.1	Single coils, knock control ME7	Spark plugs with int. ignition coil, electronics with static voltage ignition system Lamborghini L.I.E	Single-plug ignition MS S65	Single-plug ignition ME2.8.1 (MB-internal designation)	Dual ignition ME2.8.1 (MB-internal designation)	Single-plug ignition Visteon engine management
Engine lubrication	Dry sump lubrication **with 9 oil pumps**	Dry sump lubrication with 4 oil pumps	Dry sump lubrication	Forced lubrication system with lateral force controlled oil supply	Forced lubrication system	Forced lubrication system	Forced lubrication system
Emission classification	EU4	EU4	EU3	EU4	EU4	EU4	EU3
CO_2-emissions in g/km	**307** (326)	420	450	357	324	340	394
Fuel consumption (average) in accordance with 80/1268/EEC in l/100km	**12.8** (13.6)	18.3	19.5	14.8	13.5	14.3	16.5
Acceleration 0-100 km/h [s]	**Manual gearbox: 3.9 Autom. transm.: 3.7**	Man. transm.: 4.0	Man. transm.: 4.2	SMG: 4.6	Autom. transm.: 4.5	Autom. transm.: 4.5	Man. transm.: 4.9 Autom. transm.: 5.1
Maximum speed in km/h	Man. transm.: 310 Autom. transm.: 310	Man. transm.: 315	Man. transm.: 309	SMG: 250 [limited]	Autom. transm.: 250 [limited]	Autom. transm.: 250 [limited]	Man. transm.: 300 Autom. transm.: 300

Criterion	Porsche new 911 Turbo (997)	Ferrari F430	Lamborghini Gallardo	BMW M6	Mercedes-Benz SL 55 AMG	Mercedes-Benz SL 600	Aston Martin DB9
3. Transmission							
All-wheel drive	**Porsche Traction Management (PTM) with controlled multiple-disc clutch**	Not available	Viscous multiple-disc clutch	Not available	Not available	Not available	Not available
Manual transmission	6-speed	6-speed; optional: F1-shifting (Automatic mode)	6-speed; optional: 6-speed sequential manual transmission (SMG)	7-speed sequential manual transmission (SMG)	Not available	Not available	6-speed manual transmission transaxle design
Automatic transmission	Optional: 5-speed Tiptronic S, manual intervention possible via paddle switches on the steering wheel	Not available	Not available	Not available	5-speed automatic transmission (AMG-Speedshift)	5-speed automatic transmission	Optional: 6-speed automatic transmission (Touchtronic 2) with electronic shift-by-wire control
4. Chassis							
Front axle	Strut suspension, wheels suspended individually on wishbones with trailing links and suspension struts (McPherson type, Porsche optimized)	Double A-frames with forged aluminum parts	Double control arms	Two-joint spring strut axle with tension strut, adapted suspension strut, wheel carrier and front axle carrier	4-link axle	4-link axle	Aluminum double A-frames with anti-dive geometry, lateral anti-roll bar
Rear axle	Multi-link suspension LSA system, wheels suspended individually on 5 control arms	Double A-frames with forged aluminum parts	Double control arms	Aluminum integral axle with trailing links and double control arm; start and brake diving compensator	Multi-link suspension	Multi-link suspension	Aluminum double A-frames with trailing links, lateral anti-roll bar
Springs/dampers/ anti-roll bars	PASM chassis with normal and sports settings as well as 5 modules: Lane-change module, vertical control module, lateral acceleration module, brake module, load-change module. Front axle: One conical spring per wheel with internal double-acting hydraulic twin-tube gas-filled shock absorber. Anti-roll bar Rear axle: One cylindrical coil spring per wheel with co-axial internal double-acting hydraulic single-tube gas-filled shock absorber. Anti-roll bar	FA & RA: Coil spring with internal adaptive damper	Lateral anti-roll bar, anti-dive, anti-squat and self-regulating FSD dampers front and rear; optional: sports package incl. sports steering wheel, racing package	EDC (Electronic damper control) with 3 choices per press of the button (sport, comfort and normal) to adjust damper force, anti-roll bar and coil spring front and rear, active wheel suspension	Active Body Control (ABC) with hydraulically controlled actuating cylinders ("plunger pistons"), passive gas-filled dampers and coil springs; 2 damper maps - "Sport" and "Comfort" - anti-roll bars front and rear. AMG sports chassis	Active Body Control (ABC) with hydraulically controlled actuating cylinders ("plunger pistons"), passive gas-filled dampers and coil springs; 2 damper maps - "Sport" and "Comfort" - anti-roll bars front and rear	Mono-tube shock absorbers integrated into axle as well as lateral anti-roll bars front and rear

Criterion	Porsche new 911 Turbo (997)	Ferrari F430	Lamborghini Gallardo	BMW M6	Mercedes-Benz SL 55 AMG	Mercedes-Benz SL 600	Aston Martin DB9
Steering	Rack-and-pinion power steering	Rack-and-pinion power steering	Rack-and-pinion power steering	Rack-and-pinion power steering, speed-dependent	Rack-and-pinion parameter steering, speed-dependent	Rack-and-pinion parameter steering, speed-dependent	Rack-and-pinion parameter steering, speed-dependent
Variable steering ratio	**Standard**	Not available	Not available	Not available	Not available	Not available	Not available
Turning circle (in m)	10.9	10.8	11.5	12.5	11.02	11.02	11.5
Driving dynamics control/systems to improve traction	Porsche Stability Management (PSM); Porsche Traction Management (PTM); optional: mechanical rear differential lock	CST (Stability and traction control), E-diff at RA, to be operated as packages in conjunction with shifting times and damper hardness through "Manettino"	ESP with ABS, ASR and ABD	DSC (Dynamic stability control) that can be switched off with selection function MDM (M Dynamic mode) as well as variable M differential lock rear	ESP incl. ASR, ABC	ESP incl. ASR, ABC	Dynamic stability control DSC and traction control
Braking system	Internally vented and perforated brake discs Front: 350 x 34 mm Rear: 350 x 28 mm 6-piston aluminum monobloc brake calipers, front, 4-piston aluminum monobloc brake calipers, rear ABS 8.0 Optimized PSM: enhanced braking readiness through prefilling of the brake system, brake assist	Internally vented and perforated brake discs Front: 330 x 32 mm Rear: 330 x 32 mm 4-piston fixed brake calipers ABS EBD (electronic brake distribution)	Internally vented brake discs Front: 365 x 34 mm Rear: 335 x 32 mm 8-piston brake calipers front, 4-piston brake calipers rear ABS	Internally vented and perforated compound brake discs Front: 374 x 36 mm Rear: 370 x 24 mm 2-piston floating frame calipers front, 1-piston floating calipers rear ABS, Cornering Brake Control (CBC)	Internally vented and perforated brake discs Front: 360 x 36 mm Rear: 330 x 26 mm 4-piston fixed calipers front, 1-piston floating calipers rear AMG high-performance brake system, electro-hydraulic brake system with ABS, Sensotronic Brake Control (SBC) and Brake Assist System (BAS)	Internally vented and perforated brake discs Front: 360 x 36 mm Rear: 330 x 26mm 4-piston fixed calipers front, 1-piston floating calipers rear electro-hydraulic brake system with ABS, Sensotronic Brake Control (SBC) and Brake Assist System (BAS)	Internally vented and slotted brake discs Front: 355 mm Rear: 330 mm 4-piston fixed calipers Brake system with ABS, brake load distribution EBD and Brake assist system EBA
Ceramic brake system	Optional: Porsche Ceramic Composite Brake (PCCB) Aluminum-monobloc fixed calipers Front: 6 pistons Rear: 4 pistons Internally vented and perforated brake discs Front: 380 x 34 mm Rear: 350 x 28 mm	Optional: Ceramic Composite Brake Discs (CCM) Fixed calipers: Front: 6 pistons Rear: 4 pistons Internally vented and perforated brake discs Front: 360 x 34 mm Rear: 350 x 34 mm	Not available	Not available	Not available	Not available	Not available
Wheel size (front/rear)	8.5 J x 19 RO 56 11 J x 19 RO 51	7.5 J x 19 10 J x 19	8.5 J x 19 11 J x 19	8.5 J x 19 RO 12 9.5 J x 19 RO 17	8.5 J x 18 RO 30 9.5 J x 18 RO 33	8.5 J x 18 9.5 J x 18	8.5 J x 19 9.5 J x 19
Tire size (front/rear)	235/35 ZR 19 **305/30 ZR 19**	225/35 ZR 19 285/35 ZR 19	235/35 ZR 19 295/30 ZR 19	255/40 ZR 19 285/35 ZR 19	255/40 R 18 285/35 R 18	255/40 R 18 285/35 R 18	235/40 ZR 19 275/35 ZR 19
Wheel design	Forged aluminum, two-tone look	Aluminum	Aluminum	Forged aluminum	Aluminum	Aluminum	Aluminum
Tire Pressure Monitoring (TPM)	Standard	Optional	Not available	Flat indicator	Optional	Optional	Optional

Criterion	Porsche new 911 Turbo (997)	Ferrari F430	Lamborghini Gallardo	BMW M6	Mercedes-Benz SL 55 AMG	Mercedes-Benz SL 600	Aston Martin DB9
5. Exterior							
Rear wing	**Automatically extending wing element**	Not available	Not available	Not available	Not available	Not available	Not available
Exterior colors	4 solid colors, 8 metallic colors; optional: 5 special colors as well as custom colors	16 metallic/solid colors; optional: choice of special paints and colors (except for red and yellow)	4 Metallic colors, 2 special colors (3 coats)	1 solid color, 6 metallic colors; optional: custom colors	3 solid colors, 7 metallic and 2 special colors; optional: designo-colors	3 solid colors, 7 metallic and 2 special colors; optional: designo-colors	21 colors
Door mirror	Heated, electr. adjustable, aspherical on passenger's side, parking position programmable on passenger's side, automatically dimming interior/door mirrors	Heated and electrically adjustable	Electrically heated, adjustable and retractable, painted in vehicle color; optional: heated	Heated, electrically adjustable, painted in vehicle color, aspherical, with retraction function, automatic dimming	Heated, electrically adjustable, painted in car's exterior color, aspherical, with parking setting on passenger's side; optional: electrically retractable	Heated, electrically adjustable, painted in car's exterior color, aspherical, with parking setting on passenger's side; optional: electrically retractable	Electrically adjustable, painted in vehicle color; optional: electrically retractable
Roof system	Optional: electrically operated, continuously adjustable tilting/sliding roof	Not available	Not available	Not available	Electro-hydraulic folding roof, painted in vehicle color, remote-control; optional: panoramic folding roof	Electro-hydraulic folding roof, painted in vehicle color, remote-control; optional: panoramic folding roof	Not available
Glazing/sun-screening	Heat-insulating glass all round; optional: windscreen with gray top tint	Heat-insulating glass all round	Not available	Heat-insulating glass, green, all round	Heat-absorbing glass all round, windscreen with shade band	Heat-absorbing glass all round, windscreen with shade band	Not available
Parking aid	Optional: ParkAssist with acoustic distance warning at rear	Not available	Optional: Parktronic front and rear	Optional: Park Distance Control at front and rear with visual and acoustic indication	Optional: Parktronic with visual display and acoustic alarm for front and rear	Parktronic with visual display and acoustic alarm for front and rear	Not available
Key system	Vehicle key with integrated remote control	Vehicle key with integrated remote control	Vehicle key with integrated remote control	Vehicle key with integrated remote control also for rear lid	Vehicle key with integrated remote control; optional: Keyless Go	Vehicle key with integrated remote control; optional: Keyless Go	Vehicle key with integrated remote control
6. Interior							
Interior colors	5 interior colors; optional: 2 special leather, 2 natural leather and 2 two-tone colors	12 leather and 8 carpet colors	7 interior colors; optional: 2 bi-color leather interior	5 interior colors, 3 interior trim colors; optional: custom colors	5 interior colors; optional: designo-combinations	5 interior colors; optional: designo-combinations	20 leather colors, 8 carpet colors
Material design	Leather interior; optional: leather interior in special color, bi-color and natural leather, carbon and wood packages as well as aluminum-look	Leather interior: Seats, door panels, dashboard, rear center console, steering wheel, parking brake handle Carbon or aluminum center console and dashboard elements; optional: seat design "Daytona" (perforated leather) additional leather and color options roll-over bar, 4-point belts, fire extinguisher	Optional: leather roofliner and pillars	Leather interior Merino (seats, center console, parking brake handle boot, arm rest, door handles), leather steering wheel, aluminum, wood or piano laquer trim optional	Optional: trims in maple, poplar or Blue Pearl, Viking Green	Seats, steering wheel and selector lever in leather, wooden trims in walnut; no cost options: trims in chestnut or ash; optional: trims in maple, poplar, Stone Blue Pearl, Viking Green	Full-leather interior and choice of 3 types of wood veneers

Criterion	Porsche new 911 Turbo (997)	Ferrari F430	Lamborghini Gallardo	BMW M6	Mercedes-Benz SL 55 AMG	Mercedes-Benz SL 600	Aston Martin DB9
Seats	Fully electric seats incl. lumbar support with memory function at driver's side; optional at no extra charge: sports seats; optional: adaptive sports seats	Electrically adjustable sports seats; optional: manually adjustable bucket seats in CFRP, in leather	Manual seats with electrically adjustable backrest; optional: power seats or sports seats	M sports seats with electric backrest adjustment, lumbar support and backrest widths adjustment for driver and passenger, memory function for driver	AMG sports seats with memory, heated seats, lumbar support and multi-contour backrests; optional: ventilated comfort seats	Electrically adjustable integral-belt leather seats with memory and heating, with lumbar supports; optional: ventilated comfort seats with multi-contour backrests	10-way adjustable seats (including height, tilt and lumbar support adjustment)
Heated seats/ steering wheel	Optional: seat heating	Not available	Optional: seat heating	Heated seats standard	Heated seats standard	Heated seats standard; optional: steering wheel heating	Optional: heated seats, front
7. Heating and air conditioning							
Air conditioning	Fully automatic air conditioning system with interior filter and sun-position sensor	Electronically controlled air conditioner	Automatic climate control with 2 zone and solar sensor	Automatic climate control, active carbon filter, automatic recirculation control (AUC), fogging and solar sensor and memory	Automatic climate control with dust filter and use of residual engine heat, separate right/left temperature control	Automatic climate control with dust filter and use of residual engine heat, separate right/left temperature control	Automatic climate control
8. Electrics, audio & communication							
Standard lights	Bi-Xenon lighting system with dynamic headlight leveling system and headlight washer system	Bi-Xenon headlights with headlight washer system	Bi-Xenon headlights with headlight washer system	Bi-Xenon headlights with headlight washer system, optional adaptive cornering light	Xenon headlights with daytime running lights assistant, headlight washer system and range adjustment, fog lights	Bi-Xenon headlights with daytime running lights assistant, headlight washer system and range adjustment, fog lights	Xenon gas discharge projector headlight system (low beam), Halogen projector headlights (high beam) with cleaning system and LED taillights
Theft protection	Alarm system with interior surveillance standard	Theft alarm system and immobilizer	Immobilizer standard; optional: anti-theft system	Alarm system with remote control, electronic immobilizer (EWS), hazard warning lights, tilt alarm and emergency power siren	Alarm system with tow-away protection, immobilizer; optional: interior surveillance	Alarm system with tow-away protection, immobilizer; optional: interior surveillance	Alarm system with immobilizer, remote control central locking incl. luggage compartment lock, battery main switch, battery status monitoring
Rain sensor	Standard	Not available	Not available	Standard	Standard	Standard	Not available
Multi-functional steering wheel	Optional	Manettino & Start button	Not available	Standard	Standard	Standard	Not available
Audio/radio	PCM with integrated radio, 5.8" screen in 16:9 display	HiFi system Radio/CD, MP3-compatible	Lamborghini sound system with cassette and CD player	Radio BMW-Business with CD; optional: BMW-Professional with CD	COMAND with integrated radio, 6.5-inch color display and CD/DVD-drive incl. 8 loudspeakers	COMAND with integrated radio, 6.5-inch color display and CD/DVD-drive incl. 8 loudspeakers	Linn 128W-System with radio and 6-disc CD changer
Sound systems	BOSE® Surround Sound system with 13 loudspeakers, MOST-Bus with 325 Watt amplifier output	Optional: HiFi sound system with subwoofer	Only standard offering	HiFi loudspeaker system Business Serie; optional: HiFi System Professional LOGIC7 with 13 loudspeakers	Optional: BOSE® Surround Sound system with 10 loudspeakers, 1 TSM switching amplifier, 6 linear amplifiers, 7 channels for customized equalization	BOSE® Surround Sound system with 10 loudspeakers, 1 TSM switching amplifier, 6 linear amplifiers, 7 channels for customized equalization	Optional: Linn 260W system with Limbik 5.1 or Linn 950W system with Dolby-Pro-Logic II

Criterion	Porsche new 911 Turbo (997)	Ferrari F430	Lamborghini Gallardo	BMW M6	Mercedes-Benz SL 55 AMG	Mercedes-Benz SL 600	Aston Martin DB9
CD changer	Optional: 6-disc	Optional: 6-disc	Not available	Optional: 6-disc changer in glove compartment	Optional: in storage compartment behind driver's seat	In storage compartment behind driver's seat	6-disc standard
Navigation system	DVD navigation module; optional: extended navigation system	Optional: navigation system	Optional: navigation system	Optional: navigation system Professional incl. Radio Professional, 8.8" color monitor, split-screen, voice input, DVD data in addition; optional: TV tuner	Optional: COMAND APS (DVD navigation module); additional options: TV tuner, LINGUATRONIC voice control	COMAND APS (DVD navigation module); additional options: TV tuner, LINGUATRONIC voice control	Optional: satellite navigation system or satellite navigation system with traffic report channel TMC
Telephone	Optional: telephone module for PCM as well as passive receiver	Optional: Bluetooth transmission technology	Not available	Optional: mobile phone preparation incl. hands-free facility and voice control	Antenna and wiring standard; car phone; optional: mobile phone incl. hands-free facility or mobile phone preparation	Antenna and wiring standard; car phone; optional: mobile phone incl. hands-free facility or mobile phone preparation	Optional: integrated GSM telephone
Electronic logbook	Optional	Not available	Not available	Not available	Not available	Not available	Not available
9. Safety							
Driver/passenger airbag	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Side airbags, front/rear	Thorax airbags in the seat side sections/ not available	Not available	Standard	Standard/ not available	Head/thorax sidebags (side airbags with additional head protection)	Head/thorax sidebags (side airbags with additional head protection)	Standard
Curtain/window airbags	Head airbag in upper door panel area standard	Not available	Standard	Standard			Not available
Side impact protection	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Belt-force limiters front/rear	Standard at front	Standard at front	Standard	Standard at front	Standard	Standard	Not available
Belt tensioners front/rear	Standard at front	Standard at front	Standard	Standard	Standard	Standard	Standard

Criterion	Porsche new 911 Turbo (997)	Ferrari F430	Lamborghini Gallardo	BMW M6	Mercedes-Benz SL 55 AMG	Mercedes-Benz SL 600	Aston Martin DB9
10. Dimensions and weights							
Wheelbase in mm	2,350	2,600	2,560	2,781	2,560	2,560	2,740
Exterior dimensions (L x W x H) in mm	4,450 x 1,852 x 1,300	4,512 x 1,923 x 1,214	4,300 x 1,900 x 1,165	4,871 x 1,855 x 1,372	4,535 x 1,827 x 1,295	4,535 x 1,827 x 1,291	4,710 x 1,875 x 1,270
Weight (DIN, empty) in kg	1,585	1,450	1,485	1,710	1,885	1,970	Man. transm.: 1,710 Autom. transm.: 1,800
Weight (EU, empty) in kg	1,660	1,525	1,560	1,785	1,960	2,045	Man. transm.: 1,785 Autom. transm.: 1,835
Permissible gross weight in kg	1,950	1,720	1,800	2,200	2,205	2,320	2,045
Max. payload in kg	365	250	315	490	320	350	335 (285)
Weight distribution v/h in %	Man. transm.: 39/61 Autom. transm.: 39/61	Man. transm.: 43/57	Man. transm.: 42/58	SMG: 51/49	Autom. transm.: 52/48	No details	Man. transm.: 50/50 Autom. transm.: 50/50
Aerodynamics (c_d x A)	0.31 x 2.04 = 0.63	No details	0.37	0.32 x 2.15 = 0.69	0.3	0.29	0.35
Tank capacity (reserve) in l	67 (12)	95	90	70	80 (10)	80 (10)	80
Range in km	523	519	462	473	593	559	515
Luggage compartment capacity in l	105	250 (incl. luggage compartment and storage space behind seats)	No details	450	317 (235 with open roof)	317 (235 with open roof)	197
Max. permissible roof load in kg	75	none	none	none	50	50	none
Transportation	Additional transport capacity in interior (190 l) via rear seat system; optional: tailor-made luggage systems and roof transport system	See luggage compartment volume	As accessories: luggage set	As accessories: transport nets, lashing straps and box	Luggage compartment capacity highly restricted (-82 l) when roof open; interior storage facility with retaining straps behind the seats; optional: roof transport systems and preparation for roof transport systems	Luggage compartment capacity highly restricted (-82 l) when roof open; interior storage facility with retaining straps behind the seats; optional: roof transport systems and preparation for roof transport systems	Not available
11. Warranty coverage							
Warranty period	4 years	2 years	2 years	2 years	2 years, unlimited mileage	2 years, unlimited mileage	1 year, unlimited mileage
Guarantee against rusting through	10 years	2 years	None, since aluminum body	12 years	30 years	30 years	None, since aluminum body
Paintwork guarantee	4 years		None, since multi-layer paintwork	3 years	2 years	2 years	None, since multi-layer paintwork (9 coats)

Note: This competitor comparison refers to EU-specific models for the German market. Information on competitor vehicles has been obtained from brochures, press reports, dealerships and branches (as of: April 2005). No responsibility is taken for the correctness of this information.

15.2 Key product merits

Note: Information on competitor vehicles has been obtained from brochures, press reports, dealerships and branches. Accuracy cannot be guaranteed.

15.2.1 Key advantages of the Porsche 911 Turbo over the Ferrari F430

Fig. 57: Ferrari F 430

Engine/performance	• Turbo engine with variable turbine geometry (VTG) for high torque even at low revs through fast turbocharger response • Horizontally opposed engine concept for a low center of gravity • Higher volumetric efficiency • Higher specific torque • Higher (incl. max.) torque available at low revs and over larger rev range • Optional Sport Chrono Package Turbo incl. Overboost function for higher torque and improved acceleration • Better acceleration from 0-100 km/h, 0-60 mph • Lower fuel consumption and lower exhaust emissions (CO_2)
Transmission	• Controlled all-wheel drive for enhanced driving dynamics and safe handling
Chassis	• Variable chassis damping (PASM) • Larger brake disc diameter on front and rear axle and 6-piston Al monobloc brake calipers on front axle for better brake performance • Wider wheels and tires for better traction • Sport Chrono Package Turbo for greater agility, driving pleasure and evaluation of driving data • Variable steering ratio • Tire Pressure Monitoring system as standard
Exterior	• Automatically extending split wing combining design and functionality • Electric slide/tilt sunroof as standard • Optional ParkAssist (rear) • Rain sensor standard
Interior	• Greater practicality, incl. transport capacity in the interior thanks to the 2+2 concept • 2 natural leather colors, two-tone and wood finish optional • Fully electronic seats with memory function on driver's side • Larger choice of seat variants • Adaptive sports seats optional • Optional seat heating
Electrics, audio and communication	• Interior surveillance as standard • BOSE® Surround Sound system as standard • DVD navigation module standard • Homelink® as standard • Optional electronic logbook

Safety	• Head airbags in upper door panel area standard • Thorax airbags in the side pieces of the seats standard
Vehicle as a whole	• More agile cornering behaviour through a shorter wheelbase • Better visibility through smaller exterior dimensions • Optional roof rack system • Higher payload • Markedly lower cost of ownership incl. insurance classification

15.2.2 Key advantages of the Porsche 911 Turbo over the Lamborghini Gallardo

Fig. 58: Lamborghini Gallardo

Engine/performance	• Turbo engine with variable turbine geometry (VTG) for high torque even at low revs through fast turbocharger response • Horizontally opposed engine concept for a low center of gravity • Higher volumetric efficiency • Higher specific torque • Higher (incl. max.) torque available at low revs and over larger rev range • Optional Sport Chrono Package Turbo incl. Overboost function for higher torque and improved acceleration • Better acceleration from 0-100 km/h, 0-60 mph • Markedly lower fuel consumption and lower exhaust emissions (CO_2) • Greater range • Lower insurance classification
Transmission	• Controlled all-wheel drive for enhanced driving dynamics and safe handling
Chassis	• Actively variable chassis damping (PASM) • Larger brake disc diameter on rear axle and cross-drilled brake discs at front and rear for better braking performance • PCCB optional • Wider tires on the rear axle for better traction • Tire Pressure Monitoring system as standard • Variable steering ratio • Sport Chrono Package Turbo for greater agility, driving pleasure and evaluation of driving data • Smaller turning circle
Exterior	• Door mirrors heated as standard, with parking function, automatic anti-dazzle function • Electric slide/tilt sunroof as standard • Larger number of metallic and special colors for customisation • Optional colors to sample • Rain sensor standard
Interior	• Greater practicality, incl. transport capacity in the interior thanks to the 2+2 concept • 2 natural leather colors, carbon/Aluminum Look options and wood finish packages optional • Fully electric seats with memory function on driver's side • Adaptive sports seats optional

Electrics, audio and communication	• Alarm system with interior surveillance as standard • BOSE® Surround Sound system as standard • Optional 6-disc CD autochanger • DVD navigation module standard • HomeLink® as standard • Optional telephone module for PCM and passive receiver • Optional multi-function steering wheel • Optional electronic logbook
Vehicle as a whole	• More agile cornering behaviour through a shorter wheelbase • Optional roof rack system • Higher payload • Markedly better c_d value • Markedly lower cost of ownership incl. insurance classification

15.2.3 Key advantages of the Porsche 911 Turbo over the BMW M6 Coupé

Fig. 59: BMW M6 Coupé

Engine/performance	• Turbo engine with variable turbine geometry (VTG) for high torque even at low revs through fast turbocharger response • Horizontally opposed engine concept for a low center of gravity • Dry sump lubrication for reliable oil supply on the race circuit, too • Rear engine for good agility and traction • Higher volumetric efficiency • Higher specific torque • Higher (incl. max.) torque available at low revs and over larger rev range • Optional Sport Chrono Package Turbo incl. Overboost function for higher torque and improved acceleration • Better power-to-weight ratio • Better acceleration from 0-100 km/h, 0-60 mph • Higher top speed • Lower fuel consumption and low exhaust emissions (CO_2) • Greater range
Transmission	• Controlled all-wheel drive for enhanced driving dynamics and safe handling • Manual transmission as standard for individual gear-shifting
Chassis	• Variable chassis damping (PASM) • 6-piston Al monobloc brake calipers at front and 4-piston Al monobloc brake calipers at rear for better braking performance • Wider wheels at rear for better traction • PCCB optional • Smaller turning circle • Variable steering ratio • Sport Chrono Package Turbo for greater agility, driving pleasure and evaluation of driving data
Exterior	• Larger number of metallic and special colors for customisation • Automatically extending split wing combining design and functionality • Electric slide/tilt sunroof as standard
Interior	• 2 special leather and 2 natural leather colors plus carbon features optional • Larger choice of seat variants
Electrics, audio and communication	• Interior surveillance as standard • BOSE® Surround Sound system as standard • DVD navigation module standard • HomeLink® as standard • Optional electronic logbook

Vehicle as a whole	• More agile cornering behaviour through a shorter wheelbase • Better visibility through smaller exterior dimensions • More agile performance due to markedly lower weight • Optional roof rack system • Better c_d value • Lower cost of ownership incl. insurance classification

15.2.4 Key advantages of the Porsche 911 Turbo over the Mercedes-Benz SL 55 AMG

Fig. 60: Mercedes-Benz SL 55 AMG

Engine/performance	• Turbo engine with variable turbine geometry (VTG) for high torque even at low revs through fast turbocharger response • Horizontally opposed engine concept for a low center of gravity • Four-valve technology for outstanding gas cycle, resulting in high output • Variocam Plus for high performance, low fuel consumption and low emissions • Dry sump lubrication for reliable oil supply on the race circuit, too • Rear engine for good agility and traction • Higher volumetric efficiency • Higher specific torque • Higher torque available at lower revs and over larger rev range • Optional Sport Chrono Package Turbo incl. Overboost function for higher torque and improved acceleration • Better power-to-weight ratio • Better acceleration from 0-100 km/h, 0-60 mph • Higher top speed • Lower fuel consumption and low exhaust emissions (CO_2)
Transmission	• Controlled all-wheel drive for enhanced driving dynamics and safe handling • Manual transmission as standard for individual gear-shifting
Chassis	• Wider wheels and tires on rear axle, larger wheels on front and rear axle for better traction, road holding and more agile cornering • Larger brake disc diameter on rear axle and 6-piston Al monobloc brake calipers at front and 4-piston Al monobloc brake calipers at rear for better braking performance • PCCB optional • Variable steering ratio • Sport Chrono Package Turbo for greater agility, driving pleasure and evaluation of driving data • Smaller turning circle • Tire Pressure Monitoring system as standard
Exterior	• Solid roof with lower weight and lower center of gravity for the vehicle, thereby reducing rolling tendency and providing for more agile cornering • Automatically extending split wing combining design and functionality • Larger number of metallic and special colors for customisation
Interior	• Greater practicality, incl. transport capacity in the interior thanks to the 2+2 concept • 2 special leather and 2 natural leather colors plus carbon features optional

Electrics, audio and communication	• Interior surveillance as standard • Bi-Xenon lighting system as standard • BOSE® Surround Sound system as standard • DVD navigation module standard • HomeLinik® as standard • Optional electronic logbook
Vehicle as a whole	• More agile cornering behaviour through a shorter wheelbase • More agile performance due to markedly lower weight • Higher payload • Lower cost of ownership incl. insurance classification

15.2.5 Key advantages of the Porsche 911 Turbo over the Mercedes-Benz SL 600

Fig. 61: Mercedes-Benz SL 600

Engine/performance	• Turbo engine with variable turbine geometry (VTG) for high torque even at low revs through fast turbocharger response • Horizontally opposed engine concept for a low center of gravity • Four-valve technology for high gas cycle, resulting in high output • Variocam Plus for high performance, low fuel consumption and low emissions • Dry sump lubrication for reliable oil supply on the race circuit, too • Rear engine for good agility and traction • Higher volumetric efficiency • Higher specific torque • Higher torque available at lower revs and over larger rev range • Optional Sport Chrono Package Turbo incl. Overboost function for higher torque and improved acceleration • Better power-to-weight ratio • Better acceleration from 0-100 km/h, 0-60 mph • Higher top speed • Lower fuel consumption and low exhaust emissions (CO_2)
Transmission	• Controlled all-wheel drive for enhanced driving dynamics and safe handling • Manual transmission as standard for individual gear-shifting
Chassis	• Wider wheels and tires on rear axle, larger wheels on front and rear axle for better traction, road holding and more agile cornering • Larger brake disc diameter on rear axle and 6-piston Al monobloc brake calipers at front and 4-piston Al monobloc brake calipers at rear for better braking performance • PCCB optional • Variable steering ratio • Sport Chrono Package Turbo for greater agility, driving pleasure and evaluation of driving data • Smaller turning circle • Tire Pressure Monitoring system as standard
Exterior	• Solid roof with lower weight and lower center of gravity for the vehicle, thereby reducing rolling tendency and providing for more agile cornering • Automatically extending split wing combining design and functionality • Larger number of metallic and special colors for customisation
Interior	• Greater practicality, incl. transport capacity in the interior thanks to the 2+2 concept • 2 special leather and 2 natural leather colors plus carbon features optional

Electrics, audio and communication	• HomeLink® as standard • Interior surveillance as standard • Optional electronic logbook
Vehicle as a whole	• More agile cornering behaviour through a shorter wheelbase • More agile performance due to markedly lower weight • Higher payload • Lower cost of ownership incl. insurance classification

15.2.6 Key advantages of the Porsche 911 Turbo over the Aston Martin DB9

Fig. 62: Aston Martin DB9

Engine/performance	• Turbo engine with variable turbine geometry (VTG) for high torque even at low revs through fast turbocharger response • Horizontally opposed engine concept for a low center of gravity • Variocam Plus for high performance, low fuel consumption and low emissions • Dry sump lubrication for reliable oil supply on the race circuit, too • Rear engine for good agility and traction • Higher power • Higher volumetric efficiency • Higher specific torque • Higher (incl. max.) torque available at low revs and over larger rev range • Optional Sport Chrono Package Turbo incl. Overboost function for higher torque and improved acceleration • Better power-to-weight ratio • Better acceleration from 0-100 km/h, 0-60 mph • Higher top speed • Lower fuel consumption and low exhaust emissions (CO_2) • Lower emissions classification
Transmission	• Controlled all-wheel drive for enhanced driving dynamics and safe handling
Chassis	• Variable chassis damping (PASM) • 6-piston Al monobloc brake calipers at front and larger brake discs on rear axle for better braking performance • PCCB optional • Wider wheels and tires at rear for better traction • Tire Pressure Monitoring system as standard • Variable steering ratio • Sport Chrono Package Turbo for greater agility, driving pleasure and evaluation of driving data • Smaller turning circle
Exterior	• Optional colors to sample • Electric slide/tilt sunroof as standard • Automatically extending split wing combining design and functionality • Optional ParkAssist
Interior	• Optional carbon and Aluminum Look packages • Larger choice of seat variants incl. adaptive sports seats

Electrics, audio and communication	• BOSE® Surround Sound system as standard • DVD navigation module standard • HomeLink® as standard • Bi-Xenon lighting system as standard • Rain sensor standard • Optional multi-function steering wheel • Optional electronic logbook
Safety	• Head airbags in upper door panel area standard
Vehicle as a whole	• More agile cornering behaviour through a shorter wheelbase • Better visibility through smaller exterior dimensions • More agile driving behaviour through lower weight • Higher payload • Markedly better c_d value • Optional roof rack system • Lower cost of ownership incl. insurance classification

15.3 Overview of USPs

Features	Porsche 911 Turbo	Competitors: Ferrari F430	Lamborghini Gallardo	BMW M6	Mercedes-Benz SL 55 AMG	Mercedes-Benz SL 600	Aston Martin DB9	Customer benefits
								+ Very good/better than the competition 0 Good/on a par with the competition - Unfavourable/inferior to the competition **+** Best in class/superior to the competition
Vehicle concept								
2+2 seats	+	0	0	+	0	0	+	High practicality
Drive								
Type, number of cylinders	**B6**	V8	V10	V10	V8	V12	V12	Minimum vibration, lower center of gravity and low weight for high driving performance
Turbocharging with variable turbine geometry (VTG)	**+**	0	0	0	0	0	0	High torque even at low revs and over a large rev range, plus high output
Rear or mid engine	+	+	+	-	-	-	0	Excellent traction, high agility
Dry sump lubrication	**+**	+	+	0	0	0	0	Dry sump lubrication with 9 oil pumps for reliable oil supply at high levels of lateral acceleration, too
Fuel consumption	**+**	-	-	0	+	0	-	Low consumption with correspondingly low running costs
Exhaust emissions (CO_2)	**+**	-	-	0	+	0	-	Low pollutive impact, favourable insurance classification
Manual transmission	+	+	+	+	0	0	+	High agility, lower fuel consumption
Controlled all-wheel drive	**+**	0	+	0	0	0	0	Better-balanced driving dynamics and safe handling
Chassis								
Variable steering ratio	**+**	0	0	0	0	0	0	Good handling and high agility
Wide wheels-/tires-combination	**+**	0	0	0	0	0	0	Excellent lateral and longitudinal acceleration potential
Controlled sporty chassis	+	+	+	+	0	0	0	Better traction and therefore greater acceleration potential
Turning circle	+	+	0	-	0	0	0	High practicality
Sport Chrono Package Turbo with Overboost (optional)	**+**	0	0	0	0	0	0	Enhanced driving enjoyment and evaluation of driving data

Features	Porsche 911 Turbo	Competitors						+ Very good/better than the competition 0 Good/on a par with the competition - Unfavourable/inferior to the competition **+** Best in class/superior to the competition **Customer benefits**
		Ferrari F430	Lamborghini Gallardo	BMW M6	Mercedes-Benz SL 55 AMG	Mercedes-Benz SL 600	Aston Martin DB9	
Brake system								
Multi-piston fixed caliper brake system with large brake discs	+	0	+	0	0	0	0	High braking potential and driving safety
Ceramic brake system (PCCB) (optional)	+	+	0	0	0	0	0	Excellent potential for coping with high levels of stress
Exterior								
Rear lid with automatically extending split spoiler	**+**	0	0	0	0	0	0	Combination of design and aerodynamics to optimize driving stability and safety in particular at high speeds
Aerodynamics	+	No details	-	0	+	+	-	Good aerodynamics conducive to high top speeds, low fuel consumption and safe handling
Extended color range	+	+	0	-	0	0	+	Broader scope for customisation through additional solid, metallic and special colors
Vehicle as a whole								
Driving performance/dynamics	+	+	+	0	0	0	0	Excellent lateral and longitudinal acceleration potential
Acceleration (0-100 km/h, 0-60 mph)	**+**	0	0	-	-	-	-	High acceleration capacity
Top speed	+	+	+	-	-	-	0	High top speed
Low vehicle weight	+	+	+	0	-	-	0	Low fuel consumption and high agility
Power-to-weight ratio	+	+	+	+	0	0	0	High acceleration potential
Compact vehicle dimensions	+	0	+	-	0	0	-	Great agility and handling
Cost of ownership								
Total running costs	+	-	-	0	0	0	-	Low fixed and running costs incl. liability and comprehensive insurance classification, vehicle tax and fuel costs

Imprint

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Note:
All information provided in this document is correct as at February 2006. Porsche reserves the right to alter design, technical specification, prices, equipment and final scope of delivery at any time prior to the market launch of the 911 Turbo.

The descriptions in this section are based on the EU model. Country-specific changes are possible up to the launch and throughout the service life of the vehicle.

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